NOUVELLES TABLES

D'INTÉGRALES DÉFINIES,

PAR

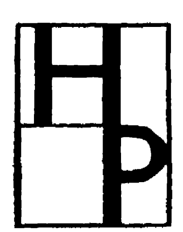
D. BIERENS DE HAAN,

MEMBRE DE L'ACADÉMIE ROYALE DES SCIENCES D'AMSTERDAM.

EDITION OF 1867 — CORRECTED

with an English Translation
of the Introduction by

PROFESSOR J. F. RITT
Columbia University



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A

SA MAJESTÉ,

LE ROI DES PAYS-BAS, GRAND-DUC DE LUXEMBOURG, ETC., ETC., ETC.,

GUILLAUME III,

PROTECTEUR

DE L'ACADÉMIE ROYALE DES SCIENCES D'AMSTERDAM.

PREFACE

TO

ORIGINAL EDITION OF 1867

Les Tables d'Intégrales Définies, — formant le Volume IV des Mémoires de l'Académie Royale des Sciences d'Amsterdam, qui a paru en 1858 — ont été épuisées en peu de temps. C'est avec reconnaissance et quelque peu de fierté, que j'attribue ce succès inespéré à l'accueil tout favorable fait à une entreprise scientifique, première en son genre, tant par divers corps savants que par les journaux scientifiques de l'étranger.

Mais dès-lors je dus songer à une nouvelle édition. Or, pour celle-ci je pouvais profiter de l'expérience acquise par la première, ainsi que des remarques faites par quelques savants bienveillants. En outre, j'avais publié dans l'intervalle quelques mémoires contenant des systèmes nouveaux de ces formules. Et surtout, notre Académie avait fait imprimer en 1862 le Volume VIII de ses Mémoires, renfermant mon „Exposé de la théorie, des propriétés, des formules de transformation et des méthodes d'évaluation des intégrales définies."

Il était indispensable, vu l'accumulation des matériaux, de simplifier autant que possible le but qu'on se proposait, et le chemin qui devait y conduire. Il fallait, en général, supprimer les intégrales superflues; en outre il semblait nécessaire d'omettre les notices littéraires.

Comme intégrales superflues, j'ai omis en premier lieu les intégrales déjà connues comme indéfinies, et qui ne tombent dans aucun cas de discontinuité. Ensuite, on pouvait négliger celles qui; par des considérations particulières, pouvaient se réduire aisément à d'autres intégrales. Ainsi, celles où la fonction à intégrer est paire ou impaire, sont données seulement pour les limites 0 et 1, 0 et ∞, ou 0 et $\frac{1}{2}\pi$, 0 et π, non pour celles -1 et $+1$, $-\infty$ et $+\infty$, ou $-\frac{1}{2}\pi$ et $+\frac{1}{2}\pi$, $-\pi$ et $+\pi$. Celles où la fonction ne change pas par une substitution de la

valeur inverse de la variable, ne sont données que pour les limites 0 et 1, les intégrales entre les limites 1 et ∞, 0 et ∞, pouvant aisément se déduire de celles-ci. De même dans les intégrales où il faut intégrer une fonction de $\sin x$ seulement, le *sinus* est changé en *cosinus* par la substitution $x = \frac{\pi}{2} - y$; ces dernières intégrales sont omises en général.

De cette manière on obtenait déjà une véritable simplification; restait encore à supprimer les notices littéraires. Or, celles-ci avaient un double but: celui de donner un coup d'œil sur l'état actuel et sur l'histoire de la science; en second lieu, celui de tenir lieu de démonstration, puisqu'on y renvoyait aux sources elles-mêmes. Donc, en renonçant à ces notices, il fallait absolument y suppléer d'une autre manière, puisqu'il est nécessaire avant tout que chacun, s'il le désire, puisse s'assurer lui-même de la validité du résultat donné.

J'ai cru pouvoir satisfaire à ces diverses conditions par les considérations suivantes.

Le Volume VIII des Mémoires de l'Académie, mentionné ci-dessus, contenait, conformément à son but, la déduction d'une partie des intégrales du Volume IV; et, de plus, un certain nombre de formules nouvelles. Pour l'évaluation de ces intégrales on pouvait se contenter de citer le passage correspondant du Volume VIII; en outre, soit dans cette discussion, soit dans le renvoi vers le Volume IV, on trouvait tout ce qui était légitimement à désirer sur les sources, où chaque intégrale était traitée. J'ai donc commencé par admettre toutes les formules trouvées dans le Volume VIII; elles sont notées ainsi (VIII,...), le second nombre indiquant le numéro de la page à consulter.

Autour de ce noyau pouvaient se grouper les divers systèmes de formules mentionnés ci–dessus, et qui se trouvent soit dans les Mémoires ou les Comptes-Rendus de notre Académie, soit dans ceux de la Société des Sciences à Harlem, soit dans les Archives publiées par une Société mathématique à Amsterdam, sous la devise: „Een onvermoeide Arbeid, etc." Ces mémoires sont cités (voir les Abréviations etc. page 22 et 23), avec addition de la page quelquefois, dans le cas où le mémoire en question a un trop grand volume, pour que la recherche de l'intégrale y soit aisée. Quant au mémoire noté (H)., il est nécessaire, pour une juste appréciation de l'histoire de la science, d'observer ici que quelques-unes des formules qu'on y rencontre, avaient déjà été déduites auparavant par l'illustre C. J. Malmsten, dans les Nouveaux Actes d'Upsala, T. XII. p. 171.

Ensuite de ce corps de formules il était permis de déduire par des méthodes simples d'autres intégrales définies, méthodes, soit d'addition et de soustraction, soit de substitution d'une nouvelle variable, soit de l'application d'une intégration partielle, dont j'ai traité dans le Volume II des Mémoires de l'Académie. Je les ai employées principalement là, où cette extension me semblait

désirable pour compléter le cadre. Tout comme dans le Volume IV, ces résultats sont indiqués ainsi (V. T...., N...), sans qu'on ait jugé nécessaire de signaler la méthode de déduction; vu que, d'un côté, cette indication aurait pu prendre beaucoup de place, ce qui était contraire au but; et que, d'autre part, on peut toujours aisément y suppléer soi-même par l'inspection et la comparaison du résultat obtenu et de la formule citée.

Mais il ne m'a pas été possible de comprendre dans ce système, déjà suffisamment développé, toutes les formules qui étaient à transcrire des tables originelles du Volume IV, ni toutes celles que je rencontrais encore par-ci et par-là. A l'égard de ces dernières intégrales il était donc nécessaire de procéder de la même manière que dans le Volume IV; c'est-à-dire d'ajouter pour chacune d'elles une notice, contenant le nom de celui qui l'a déduite, et l'ouvrage, où l'on en peut trouver l'évaluation. Quant aux premières, il suffisait de renvoyer vers le Volume IV, avec la page à consulter, ainsi (IV,...).

C'est ainsi que le but s'est trouvé restreint à ne donner, en général, que la valeur des intégrales définies. Quant à ceux qui veulent étudier les sources, ils devront, lorsqu'elles ne sont pas mentionnées, passer par le Volume VIII au Volume IV, ou directement à ce dernier, où ils pourront trouver ce qu'ils désirent.

Le mode de rédaction maintenant employé, c'est-à-dire sans ajouter, en général, des notices littéraires aux intégrales admises, fournissait encore un autre moyen de rendre le coup d'œil plus commode, en resserrant les Tables. Ce moyen consistait à imprimer deux formules sur une même ligne, lorsqu'il y avait assez de place. En économisant ainsi l'espace d'une page, on a diminué en même temps quelque peu l'étendue de l'ouvrage, sans que pourtant l'examen facile des formules ait eu à en souffrir.

Nous allons voir que cette simplification était bien nécessaire pour ne pas grossir le volume outre mesure, et en rendre par-là-même l'usage difficile et incommode.

Les anciennes Tables (Volume IV des Mémoires etc.) contenaient environ 7300 formules, dont environ 4200 ont été admises dans ces Nouvelles Tables. Ce nombre s'est accru jusqu' à 8339, dont 2620 se trouvent évaluées dans l'Exposé (Volume VIII) et 1272 autres dans l'une ou l'autre de mes notes, dont il a été fait mention plus haut. J'en ai rencontré encore 366 soit dans des ouvrages qui ont paru plus tard que 1859, soit dans d'autres que je n'avais pu consulter auparavant. Pour 1015 autres j'ai dû me contenter de renvoyer au Volume IV, les anciennes Tables elles-mêmes. Enfin il s'en trouve encore un nombre de 3086, qui ont été déduites de ces premières formules, par quelqu'une des méthodes mentionnées précédemment. On en pourra le mieux juger par l'inspection des données suivantes.

Section.	Tables.	Renvois au		Formules trouvées dans des mémoires		Formules déduites.	Total des formules.
		Vol. VIII.	Vol. IV.	de moi.	d'autres auteurs.		
1	1-25	232	82	—	13	103	430
2	26-29	20	15	—	6	25	66
3	30-33	13	3	—	1	33	50
4	34-75	298	119	134	66	254	871
5	76-78	14	4	—	—	11	29
6	78	—	4	—	—	1	5
Partie I.		577	227	134	86	427	1451
en raison de		40	16	9	6	29	pour 100
7	80-105	106	126	—	17	219	468
8	106-148	214	122	—	104	362	802
9	149-228	571	191	648	41	224	1675
10	229-254	97	3	—	3	334	437
11	255	8	—	—	2	1	11
Partie II.		996	442	648	167	1140	3393
en raison de		29	13	19	5	34	pour 100
12	256-260	14	11	—	1	50	76
13	261-281	105	84	—	33	105	327
14	282	3	—	—	1	6	10
15	283	5	—	—	—	1	6
16	284-338	154	62	31	6	721	974
17	339	2	—	—	—	8	10
18	340	6	1	—	—	2	9
19	341-349	41	4	—	3	74	122
20	350, 351	16	5	—	3	1	25
Partie III.		346	167	31	47	968	1559
en raison de		22	11	2	3	62	pour 100
21	352-360	21	26	—	9	55	111
22	361-398	120	76	292	24	82	594
23	399	7	10	—	—	6	23
24	400	5	—	—	1	—	6
25	401-434	181	35	128	18	170	532
26	435-443	3	2	5	—	111	121
27	444	1	—	—	—	4	5
28	455-459	164	6	27	6	29	232
29	460-465	93	—	—	—	—	93
30	466	12	—	—	—	—	12
31	467-471	—	8	—	3	45	56
32	472	2	—	—	3	6	11
33	473	4	—	—	—	5	9
34	474	5	—	—	—	2	7
35	475	4	2	—	—	6	12
36	476	4	—	—	—	—	4
Partie IV.		626	165	452	64	521	1828
en raison de		34	9	25	4	28	pour 100
37	477-486	75	14	7	2	30	128
Partie V.		75	14	7	2	30	128
en raison de		58	11	5	2	24	pour 100

Récapitulation. Parties.	Renvois au		Formules trouvées dans des mémoires		Formules déduites.	Total des formules.
	Vol. VIII.	Vol. IV.	de moi.	d'autres auteurs.		
I.	577	227	134	86	427	1451
II.	996	442	648	167	1140	3393
III.	346	167	31	47	968	1559
IV.	626	165	452	64	521	1828
V.	75	14	7	2	30	128
Partie I—V.	2620	1015	1272	366	3086	8359
en raison de	31	12	15	5	37	pour 100

Les divers changements qui viennent d'être exposés, réduction du volume des anciennes Tables, accroissement de 99 pour cent environ par de nouvelles formules, omission des notices littéraires, suffiront sans doute à justifier le nouveau titre de ces Nouvelles Tables.

Dans la préface du Tome IV, j'ai dû traiter de la classification des Tables. Je crois que l'usage a justifié les principes de cette classification, et par suite je les ai pris de nouveau pour base. De même dans le cadre des Tables il n'est survenu aucun changement d'importance, si ce n'est quelquefois une subdivision d'une table, que nécessitait une trop grande affluence de formules. Seulement, dans chaque Section j'ai voué une Table spéciale à ces „Intégrales Limites", dans lesquelles une constante converge vers zéro, ou diverge vers l'infini.

Quelques mots suffiront pour faire comprendre la construction des Tables elles-mêmes, qui n'a pas changé non plus. En tête de chaque Table on trouve au milieu, son numéro; à gauche, la description des fonctions intégrées; à droite, les limites de l'intégration. Ce sont les mêmes trois arguments principaux qui figurent dans le Sommaire des Tables.

Le manuscrit achevé, Sa Majesté notre Roi a daigné accorder une indemnité à l'éditeur, pour l'aider à supporter les frais considérables de l'impression d'un tel ouvrage. C'est grâce à cette haute et bienveillante intervention que l'impression à pu être commencée.

Toute personne, qui a quelque expérience d'une pareille entreprise, sait combien il est difficile d'éliminer toutes sortes de fautes, provenant des sources les plus diverses. Quoique je me fusse appliqué de toutes mes forces à obtenir une grande exactitude à cet égard, l'expérience m'avait montré combien il faut se méfier de soi-même, là où il n'y a aucun contrôle à imaginer. J'ai pris le parti de vérifier, après l'impression, chaque formule auprès de la source même. C'était un

travail laborieux, et il m'a fait trouver quelques intégrales oubliées dans la rédaction. En outre, depuis que le manuscrit avait été rédigé, j'avais encore rencontré quelques formules. Par suite j'ai cru devoir donner les unes et les autres dans une Addition, afin de mettre cet ouvrage, autant que possible, à la hauteur de l'époque actuelle. Pour que ces intégrales puissent entrer dans le corps de l'ouvrage, elles sont imprimées de manière à pouvoir être découpées et attachées auprès de la Table à laquelle elles appartiennent; par la même raison, le numéro d'ordre de la Table est continué pour ces formules supplémentaires.

Mais quant au but propre de cette révision, la recherche des fautes qui pouvaient s'être introduites dans cet ouvrage, elle ne m'a donné que trop de sujet de me féliciter de l'avoir entreprise. La liste des corrections peut en témoigner; j'y ai aussi noté les renvois fautifs. Oserais-je invoquer l'indulgence des savants en citant ici l'opinion bienveillante d'un éminent mathématicien anglais (A. d. M) [à l'occasion de mes Tables d'Intégrales Définies, dans The Athenaeum, N. 1607, Aug. 14, 1858]. „We must tell our general reader, that among other things which he does not know, all books of algebra will have misprints: the absence of a table of errata does not show that they are not there, but only that they have not been found out."

Quant à l'éditeur, il s'est donné toute peine possible pour faire réussir ces Tables. Muni d'un tout nouveau système de types, l'atelier typographique de M. Drabbe s'est fait un point d'honneur de satisfaire aux soins qu'exige un tel ouvrage, où la rigueur est de première nécessité, sans toutefois que l'élégance doive en être exclue.

Je viens de donner une esquisse biographique des Nouvelles Tables. Puissent-elles trouver un accueil aussi bienveillant que leur soeur aînée.

D. B. D. H.

The entire edition of the *Tables d'Intégrales Définies,* which appeared in 1858 as Volume IV of the Memoirs of the Royal Academy of Sciences of Amsterdam, was rapidly exhausted. This unanticipated success, which may be attributed to the favorable reception of my work, the first of its kind, by various learned societies and by the foreign scientific journals, finds me appreciative, and not without pride.

It became necessary immediately to plan a new edition. Naturally I could utilize the experience gained in preparing the first edition, as well as suggestions which a number of scientists kindly made. Besides, I had, in the meantime, published some articles containing new formulas. Above all, our Academy had published, in 1862, the eighth volume of its Memoirs, containing my "Exposé de la théorie, des propriétés, des formules de transformation et des méthodes d'évaluation des intégrales définies."

Considering the increase in material, it was of prime importance to simplify the program as much as possible. It was essential to suppress unimportant integrals; the omission of references to the literature also seemed desirable.

To begin with, I omitted, as unimportant, proper definite integrals for which the indefinite integral involved could be evaluated in finite terms. Economies could also be effected where one integral could easily be transformed into a second. Thus, where the integrand is an odd

function or an even function, I employed only the limits 0 and 1, 0 and ∞, 0 and $\frac{\pi}{2}$, 0 and π; not —1 and 1, $-\infty$ and ∞, etc. Where the substitution $x = \frac{1}{y}$ leads to the same integrand, only the limits 0 and 1 are used; the results for the limits 1 and ∞ or 0 and ∞ can then easily be deduced. Advantage was similarly taken of the fact that an integrand which is a function of cos x goes over into a function of sin x under the substitution $x = \frac{\pi}{2} - y$.

One obtained thus a genuine simplification. It remained to supress the references to the literature, which indicated the present state of the subject, as well as its history, and which served in the place of proofs of the formulas. It was necessary to compensate for this deletion, in such a way as to facilitate the verification of the formulas by readers desirous of making such verifications. This situation was met in the following manner.

The above mentioned Volume VIII of the Memoirs of the Academy contained, in accordance with its aim, the derivations of part of the results of Volume IV and a certain number of new formulas. In connection with these formulas references to the corresponding places in Vol. VIII are deemed sufficient; either there, or in the references there given to Vol. IV, adequate indications as to the sources of the results will be found. Thus the present Tables contain all of the formulas of Vol. VIII; they are indicated by the notation (VIII, . . .), the second number referring to the page which is to be consulted.

About this nucleus it was possible to group the various systems of formulas mentioned above, formulas contained either in the Memoirs or the Proceedings of our Academy, or in those of the Haarlem Society of Sciences, or in an article "Een onvermoeide Arbeid, etc." published in the Archives of a mathematical society of Amsterdam. References are given to these articles. (See abbreviations, etc., page 22, 23.) Where articles are of considerable length, references to definite pages are given. As to the article designated by (H), it should be observed, for the sake of historical accuracy, that some formulas there contained had previously been given by the eminent mathematician C. J. Malmsten in the New Acta of Upsala, Vol. XII, p. 171.

From this body of formulas, it was possible to deduce, by additions and subtractions, by

substitutions and by integration by parts, other formulas, which I had considered in Vol. II of the Memoirs of the Academy. Formulas which may thus be deduced are presented here chiefly where they seem to extend the scope of the Tables in a desirable way. As in Vol. IV, these results are indicated by the notations (V. T. . . ., N. . . .). It was judged unnecessary to give indications in regard to the proofs of such results; on the one hand such indications would lengthen the present volume undesirably; on the other, proofs of such results are entirely similar to the proofs of the results which they extend.

The above method of giving references was not applicable to certain formulas of Vol. IV. For such formulas, a reference to the appropriate page of Vol. IV is given. The notation used is (IV, . . .). For other formulas, compiled from various sources, there is given the name of the discoverer and the place where the proof is to be found.

I have thus generally given only the values of the integrals. The sources, except in the cases where they are given here, can be determined from Vol. IV, sometimes by a direct reference given here, sometimes by an intermediate reference to Vol. VIII.

The omission of references permitted a contraction of the Tables which makes their use more convenient. It became possible, namely, in many instances, to print two formulas on a single line. The size of the volume was thus reduced, with no loss in the facility with which the formulas may be consulted.

It will be seen now that without such simplifications the present volume would have been inconveniently large.

The original tables (Vol. IV, etc.) contained approximately 7300 formulas, of which about 4200 are given in these New Tables. This number grew to 8339, of which 2620 are presented in the Exposé (Vol. VIII) and 1272 in various notes mentioned above. I found 366 formulas either in publications which appeared later than 1859 or in others which I had not been able to consult previously. In connection with 1015 formulas, it has been necessary to give references to Vol. IV. Finally there are 3086 formulas, deduced from other formulas by methods described above. The following table will explain the details.

Section.	Tables.	References to Vol. VIII.	References to Vol. IV.	Formulas found in memoirs: mine	Formulas found in memoirs: others	Deduced formulas	Total number of formulas
1	1-25	232	82	—	13	103	430
2	26-29	20	15	—	6	25	66
3	30-33	13	3	—	1	33	50
4	34-75	298	119	134	66	254	871
5	76-78	14	4	—	—	11	29
6	78	—	4	—	—	1	5
Part I.		577	227	134	86	427	1451
Percentage		40	16	9	6	29	
7	80-105	106	126	—	17	219	468
8	106-148	214	122	—	104	362	802
9	149-228	571	191	648	41	224	1675
10	229-254	97	3	—	3	334	437
11	255	8	—	—	2	1	11
Part II.		996	442	648	167	1140	3393
Percentage		29	13	19	5	34	
12	256-260	14	11	—	1	50	76
13	261-281	105	84	—	33	105	327
14	282	3	—	—	1	6	10
15	283	5	—	—	—	1	6
16	284-338	154	62	31	6	721	974
17	339	2	—	—	—	8	10
18	340	6	1	—	—	2	9
19	341-349	41	4	—	3	74	122
20	350, 351	16	5	—	3	1	25
Part II.		346	167	31	47	968	1559
Percentage		22	11	2	3	62	
21	352-360	21	26	—	9	55	111
22	361-398	120	76	292	24	82	594
23	399	7	10	—	—	6	23
24	400	5	—	—	1	—	6
25	401-434	181	35	128	18	170	532
26	435-443	3	2	5	—	111	121
27	444	1	—	—	—	4	5
28	455-459	164	6	27	6	29	232
29	460-465	93	—	—	—	—	93
30	466	12	—	—	—	—	12
31	467-471	—	8	—	3	45	56
32	472	2	—	—	3	6	11
33	473	4	—	—	—	5	9
34	474	5	—	—	—	2	7
35	475	4	2	—	—	6	12
36	476	4	—	—	—	—	4
Part IV.		626	165	452	64	521	1828
Percentage		34	9	25	4	28	
37	477-486	75	14	7	2	30	128
Part V.		75	14	7	2	30	128
Percentage		58	11	5	2	24	

Summary. Parts.	References to Vol. VIII.	References to Vol. IV.	Formulas found in memoirs: mine	Formulas found in memoirs: others	Deduced formulas	Total number of formulas
I.	577	227	134	86	427	1451
II.	996	442	648	167	1140	3393
III.	346	167	31	47	968	1559
IV.	626	165	452	64	521	1828
V.	75	14	7	2	30	128
Part I—V.	2620	1015	1272	366	3086	8359
Percentage	31	12	15	5	37	

The modifications which have been described, namely, the reduction of the size of the Tables, the increase, by about 99 per cent, of the number of formulas and the omission of references, justify, we believe, the new title of this work.

In the preface to Vol. IV, I discussed the method of classifying integrals which was used in that volume. I consider that the principles of this classification have been justified by the extensive use which the Tables have received and I have used the same principles here. Also no important change was made in the body of the Tables, except that, because of the great increase in the number of formulas, it was occasionally necessary to subdivide a table. It might also be mentioned that, in each Section, I devoted a special Table to "Limiting Values of Integrals," in which a parameter tends either towards zero or towards infinity.

A few words will explain the construction of the Tables themselves, which has not changed. At the head of each Table, one finds, at the center, its number; at the left, the description of the integrands; at the right, the limits of integration. The same three principal elements appear in the Summary of Tables.

When the manuscript was completed, His Majesty our King graciously accorded a subsidy to the publisher, to help towards defraying the considerable expense of printing. This benevolent act has made possible the publication of the tables.

Whoever is familiar with an undertaking of this kind, knows how difficult it is to avoid all sorts of errors, arising from innumerable sources. Although I had exerted myself to the utmost to secure great accuracy, I knew from experience what great danger of error exists where no method for checking the results is available. I therefore undertook, after the printing, to verify each formula at its very source. During this laborious work, I discovered some formulas which I had previously overlooked. With a view towards bringing this work up to date as far as possible, these formulas, together with some others which I found after the manuscript was completed, are presented here in an Addition (Page 699).

I consider myself fortunate to have undertaken the search for errors in the Tables. The list of corrections, in which faulty references are included, bears ample witness on this question. I would plead for the indulgence of the scientific public by quoting an eminent English mathematician (A. de M., at the time of publication of my Tables d'Intégrales Définies. The Athenaeum, No. 1607, Aug. 14, 1858): "We must tell our general reader, among other things which he does not know, that all books of algebra will have misprints; the absence of a table of errata does not show that they are not there, but only that they have not been found." (Corrections here referred to have been incorporated in the text in this edition.)

The publisher has taken all possible pains to insure the success of these Tables. Furnished with new type, the printing establishment of Mr. Drabbe has made it a point of honor to maintain that care which is so essential in the case of a work of this kind, in which accuracy, above all, is necessary, while elegance is not to be ignored.

This is merely a biographical sketch of the New Tables. May this edition of the tables have the same benevolent reception which was accorded to the first.

D. B. d. H.

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NOUVELLES TABLES

D'INTÉGRALES DÉFINIES,

PAR

D. BIERENS DE HAAN.

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339.	F. Log.	et Circ. Inv.	Lim. 0 et 1.

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ABRÉVIATIONS DANS LES TITRES DES TABLES.

F.	Fonction.	ent.	entier.	dén.	dénominateur.
Alg.	Algébrique.	fract.	fractionnaire.	fact.	facteur.
Log.	Logarithmique.	mon.	monôme.	prod.	produit.
Circ. Dir.	Circulaire Directe.	bin.	binôme.	puiss.	puissance.
Circ. Inv.	Circulaire Inverse.	trin.	trinôme.	comp.	composé.
rat.	rationnel.	polyn.	polynôme.	arg.	argument.
irrat.	irrationnel.	num.	numérateur.	exp.	exposant.

ABRÉVIATIONS ET NOTATIONS.

IV, . . . Verhandelingen der Koninklijke Akademie van Wetenschappen, Deel IV, 1858. Tables d' intégrales définies, par D. Bierens de Haan.

V, . . . Verhandelingen der Koninklijke Akademie van Wetenschappen, Deel V, 1857, contient: D. Bierens de Haan, Réduction des intégrales définies générales $\int_0^\infty F(x)\frac{Cos\,p\,x\,d\,x}{q^2+x^2}$, $\int_0^\infty F(x)\frac{Sin\,p\,x\,d\,x}{q^2+x^2}$, et application de ces formules au cas, que $F(x)$ a un facteur de la forme $Sin^a x$ ou $Cos^a x$.

VIII, . . . Verhandelingen der Koninklijke Akademie van Wetenschappen, Deel VIII, 1862. Exposé de la théorie, des propriétés, des formules de transformation et des méthodes d'évaluation des intégrales définies, par D. Bierens de Haan.

M. Verslagen en Mededeelingen der Koninklijke Akademie van Wetenschappen, Deel XVI, 1864, contient p. 28—159: D. Bierens de Haan, Bijdragen tot de theorie der bepaalde integralen, N°. IV—VII.

H, . . . Natuurkundige Verhandelingen van de Hollandsche Maatschappij der Wetenschappen te Haarlem, 2e verzameling, Deel XVII, 1862. D. Bierens de Haan, Mémoire sur une méthode pour déduire quelques intégrales définies, en partie très-générales, prises entre les limites 0 et ∞, et contenant des fonctions circulaires directes.

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ABRÉVIATIONS ET NOTATIONS.

E. O. A.	Archief uitgegeven door het Wiskundig Genootschap onder de zinspreuk: Een onvermoeide arbeid komt alles te boven, Deel I, 1856—1859, contient p. 177—200, 288—315: D. Bierens de Haan, Over eenige bepaalde integralen van den vorm $\int_0^\infty \frac{e^{-px} Sin\, qx \,.\, Sin\, rx \ldots}{x^a} dx$ (ook voor het geval, dat de factor e^{-px} outbreekt), en enkele andere, die daarmede zamenhangen.
*	dénote que la formule est quelque peu variée.

N. V. Amst.	Nieuwe Verhandelingen der Eerste Klasse van het Koninklijk Nederlandsche Instituut.
C. R.	Comptes Rendus des Séances hebdomadaires de l'Académie des Sciences. Paris.
Phil. Trans.	Philosophical Transactions. London.
Sitz. Ber. Wien.	Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften (Math.-Naturwissensch. Classe). Wien.
Dsch. Zür.	Neue Denkschriften der allgemeinen Schweizerischen Gesellschaft für die gesammten Naturwissenschaften. Zürich.
Mem. Nap.	Memorie della Reale Academia delle Scienze. Napoli.
N. Act. Ups.	Nova Acta Regiae Societatis Scientiarum Upsaliensis. Series 3a. Upsal.
Handl. Stockh.	Kongl. Vetenskaps Academiens Handlingar. Stockholm.

Ann. Math.	Gergonne, Annales de Mathématiques pures et appliquées. Nismes.
L.	Liouville, Journal de Mathématiques pures et appliquées. Paris.
P.	Journal de l'École Polytechnique. Paris.
Math.	The Mathematician.
L. & E. Phil. Mag.	The London and Edinburgh Philosophical Magazine. 3d Series.
L. E. & D. Phil. Mag.	The London, Edinburgh and Dublin Philosophical Magazine. 4th Series.
C. M. J.	The Cambridge Mathematical Journal.
C. & D. M. J.	The Cambridge and Dublin Mathematical Journal.
Q. J.	The Quarterly Journal of pure and applied Mathematics.
Cr.	L. Crelle, Journal für reine und angewandte Mathematik. Berlin.
Gr.	J. A. Grunert, Archiv der Mathematik und Physik. Greifswald.
Schl. Z.	O. Schlömilch, Zeitschrift für Mathematik und Physik. Leipzig.
Int. Calc.	A. De Morgan, Integral Calculus. London. 8°.
Probab.	Laplace, Théorie analytique des Probabilités. Paris, 1812. Courcier. 4°.

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ABRÉVIATIONS ET NOTATIONS.

$A = 0,\ 577215\ldots.$

$e = 2,\ 718281\ldots.$

$\pi = 3,\ 141592\ldots.$

$i = \sqrt{-1}$

$Sinph\ q = \frac{e^q - e^{-q}}{2}$, Sinus hyperbolique

$Cosph\ q = \frac{e^q + e^{-q}}{2}$, Cosinus 〃

$Tghp\ q = \frac{e^q - e^{-q}}{e^q + e^{-q}}$, Tangente 〃

$Cothp\ q = \frac{e^q + e^{-q}}{e^q - e^{-q}}$, Cotangente 〃

Notations, non admises comme arguments dans les tables, mais employées dans les résultats, où elles portent sur des constantes.

$li\ q = \int_0^q \frac{dx}{lx}$, le Logarithme intégral

$Ei\ q = \int_{-q}^{\infty} \frac{e^{-x}\,dx}{x}$, l' Exponentielle intégrale

$Si\ q = \int_0^q \frac{Sin\,x\,dx}{x}$, le Sinus intégral

$Ci\ q = \int_{\infty}^q \frac{Cos\,x\,dx}{x}$, le Cosinus intégral

$\Gamma(q) = \int_0^{\infty} e^{-x} x^{q-1}\,dx$, Fonction Gamma

$Z'(q) = \frac{d}{dq} . l\Gamma(q)$

$\Upsilon(p, \varphi) = \int_0^{\varphi} \frac{E(p, \varphi)\,d\varphi}{\sqrt{1 - p^2 Sin^2 \varphi}}$

Ces fonctions sont comprises sous la dénomination d' Autres Fonctions.

$\binom{a}{b}$, le coefficient $b^{ième}$ de la puissance $a^{ième}$ du binôme.

$c^{a/b}$, faculté analytique (notation de Kramp).

B_{2a-1}, coefficient ou nombre Bernoullien.

$\mathcal{E} q$, le plus grand entier contenu dans q.

AVIS: Quelquefois on trouve deux formules sur une même ligne.

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PARTIE PREMIÈRE.

PARTIE PREMIÈRE.

F. Alg. rat. ent.	TABLE 1.	Lim. 0 et 1.

1) $\int (1-x^2)^a dx = \frac{(2^{a/2})^2}{1^{2a+1/1}}$ (VIII, 239).

2) $\int (1-x)^{p-1}\, x\, dx = \frac{1}{p(p+1)}$ (VIII, 319).

3) $\int (1-x)^p\, x^{1-p}\, dx = \frac{1}{2} p\pi (1-p)\, Cosec\, p\pi =$ 4) $\int (1-x)^{1-p}\, x^p\, dx\, [p^2<1]$ (IV, 27).

5) $\int (1-x)^{p-1}\, x^{q-1}\, dx = \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)} = \frac{1^{p-1/1}}{q^{p/1}} = \begin{bmatrix} p \\ q \end{bmatrix} = B(p,q),$ l'intégrale Eulérienne de première espèce (VIII, 262).

6) $\int (1-x)^{q+b-1}\, x^{p+a-1}\, dx = \frac{p^{a/1}\, q^{b/1}}{(p+q)^{a+b/1}}\ \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}$ (VIII, 262).

7) $\int (1-x)^{b-p}\, x^{p+c}\, dx = \frac{(1+p)^{c/1}(1-p)^{b/1}}{1^{b+c+1/1}}\ \frac{p\pi}{Sin\, p\pi} =$ 8) $\int (1-x)^{p+c}\, x^{b-p}\, dx$ (IV, 28).

9) $\int (1-x)^{b-p}\, x^{p-c}\, dx = \frac{(1-p)^{b/1}}{p^{c|-1}\, 1^{b-c+1/1}}\ \frac{p\pi}{Sin\, p\pi} =$ 10) $\int (1-x)^{p-c}\, x^{b-p}\, dx$ (IV, 28).

11) $\int (1-x^2)^q\, x^{2a-1}\, dx = \frac{1^{a-1/1}}{2\,.\,(q+1)^{a/1}}$ (VIII, 238).

12) $\int (1-x^2)^q\, x^{2a}\, dx = \frac{2^{q/2}}{(2a+1)^{q+1/2}}$ (VIII, 238).

13) $\int (1-x^r)^{p-1}\, x^{q-1}\, dx = r^{p-1}\ \frac{1^{p-1/1}}{q^{p/r}} = \frac{1}{pr}\ \frac{pr+q}{(p+1)q} \cdot \frac{2(pr+q+r)}{(p+2)(q+r)} \cdot \frac{3(pr+q+2r)}{(p+3)(q+2r)} \cdots$ (VIII, 233, 234).

14) $\int (1-x)^{a-1}\, (1+qx^b)^c\, x^{p-1}\, dx = 1^{a-1/1} \sum_0^\infty \binom{c}{n} \frac{q^n}{(p+nb)^{a/1}}$ $[q^2<1]$ (VIII, 475).

15) $\int [(1+x)^{p-1}(1-x)^{q-1} + (1+x)^{q-1}(1-x)^{p-1}]\, dx = 2^{p+q-1}\ \frac{\Gamma(q)\Gamma(q)}{\Gamma(p+q)}$ (VIII, 631).

16) $\int [p^r\, x^{r-1}\, (1-px)^{q-1} + (1-p)^q\, x^{q-1}\, \{1-(1-p)x\}^{r-1}]\, dx = \frac{\Gamma(q)\Gamma(r)}{\Gamma(q+r)}$ (VIII, 631).

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1) $\int \frac{x^{p-1}\,dx}{1+x} = \sum_0^\infty \frac{(-1)^n}{p+n}$ (VIII, 577) $= \frac{1}{2} Z'\left(\frac{p+1}{2}\right) - \frac{1}{2} Z'\left(\frac{p}{2}\right)$ (IV, 29).

2) $\int \frac{1-x^{p-1}}{1-x}\,dx = \sum_1^{p-1} \frac{1}{n} = \mathrm{A} + Z'(p)$ $[p^2<1]$ (VIII, 320, 602).

3) $\int \frac{1-x^p}{1-x} x^{q-1}\,dx = Z'(p+q) - Z'(q)$ (VIII, 602)

4) $\int \frac{x^q - x^p}{1-x}\,dx = Z'(1+p) - Z'(1+q)$ $[p^2<1,\ q^2<1]$ (VIII, 602).

5) $\int \frac{(1-x)^{q-r-1} x^{r-1}\,dx}{1-px} = \frac{\Gamma(r)\Gamma(q-r)}{\Gamma(q)} \sum_0^\infty \frac{r^{n/1}}{q^{n/1}} p^n$ $[q>r>0]$ (VIII, 475).

6) $\int \frac{1-q^a x^a}{1-qx}(1-x)^p\,dx = \sum_1^a \frac{q^{n-1}\,1^{n-1/1}}{(p+1)^{n-1/1}}$ (VIII, 475).

7) $\int \frac{x^p\,dx}{1+x^2} = \frac{1}{4} Z'\left(\frac{p+3}{4}\right) - \frac{1}{4} Z'\left(\frac{p+1}{4}\right)$ V. T. 2, N. 1.

8) $\int \frac{dx}{1-p^2x^2} = \frac{1}{2p}\, l\,\frac{1+p}{1-p}$ $[p^2<1]$ (VIII, 323).

9) $\int \frac{x^p - x^q}{1-x^2}\,dx = \frac{1}{2} Z'\left(\frac{q+1}{2}\right) - \frac{1}{2} Z'\left(\frac{p+1}{2}\right)$ V. T. 2, N. 4.

10) $\int \frac{1-x^2}{1-x^4}\,dx = \frac{1}{8}\pi + \frac{3}{4} l 2$ (IV, 30).

11) $\int \frac{1-x}{1-x^4} x^2\,dx = -\frac{1}{8}\pi + \frac{3}{4} l 2$ (IV, 30).

12) $\int \frac{dx}{x^{1-p} + x^{1+p}} = \frac{\pi}{4p}$ V. T. 4, N. 14.

13) $\int \frac{x^{p-1}\,dx}{1+x^q} = \frac{1}{2q} Z'\left(\frac{p+q}{2q}\right) - \frac{1}{2q} Z'\left(\frac{p}{2q}\right)$ V. T. 2, N. 1.

14) $\int \frac{x^{p-1} + x^{q-p-1}}{1+x^q}\,dx = \frac{\pi}{q}\, \mathit{Cosec}\frac{p\pi}{q}$ (IV, 30).

15) $\int \frac{x^{q-1}\,dx}{1-x^b} = -\frac{1}{b} \sum_1^b \mathit{Cos}\frac{2qn\pi}{b} \,.\, l\,\mathit{Sin}\frac{n\pi}{b} - \frac{\pi}{b^2} \sum_1^b n\, \mathit{Sin}\frac{2qn\pi}{b}$ (IV, 31).

16) $\int \frac{x^{p-1} - x^{q-p-1}}{1-x^q}\,dx = \frac{\pi}{q}\, \mathit{Cot}\frac{p\pi}{q}$ (IV, 31).

17) $\int \frac{x^{q-1} - x^{p-1}}{1-x^q}\,dx = \frac{1}{q}\left\{\mathrm{A} + Z'\left(\frac{p}{q}\right)\right\}$ (IV, 31).

18) $\int \frac{x^{q-1} + x^{p-1}}{x^{p+q}+1}\,dx = \frac{\pi}{p+q}\, \mathit{Sec}\left(\frac{q-p}{q+p}\,\frac{\pi}{2}\right)$ V. T. 4, N. 14.

19) $\int \frac{x^{q-1} - x^{p-1}}{x^{p+q}-1}\,dx = \frac{\pi}{p+q}\, \mathit{Tang}\left(\frac{q-p}{q+p}\,\frac{\pi}{2}\right)$ V. T. 4, N. 15.

F. Alg. rat. fract. à dén. $(a \pm b x^c)^d$. TABLE 3. Lim. 0 et 1.

1) $\int \frac{x^{a-1}\,dx}{(1+x)^b} = \frac{1}{2^a} \sum_0^\infty \binom{b-a-1}{n} \frac{1}{(a+n)(-2)^n}$ (IV, 31).

2) $\int \frac{x^{p-1}\,dx}{(1+x)^{2p}} = \frac{1}{2^{2p}} \frac{\Gamma(p)}{\Gamma(p+\frac{1}{2})} \sqrt{\pi}$ (VIII, 295).

3) $\int \frac{x^{q-1}+x^{p-1}}{(1+x)^{p+q}}\,dx = \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}$ (VIII, 320).

4) $\int \frac{x^p\,dx}{(1-x)^p} = \frac{p\pi}{Sin\, p\pi}\ [p^2<1]$ V. T. 1, N. 5.

5) $\int \frac{x^p\,dx}{(1-x)^{p+1}} = -\frac{\pi}{Sin\, p\pi}\ [p^2<1]$ V. T. 1, N. 5.

6) $\int \frac{x^{p+1}\,dx}{(1-x)^p} = \frac{1+p}{2} \frac{p\pi}{Sin\, p\pi}\ [p^2<1]$ V. T. 1, N. 5.

7) $\int \frac{x^{q-2}\,dx}{(1+px)^q} = \frac{(1+p)^{1-q}}{q-1}$ V. T. 3, N. 8.

8) $\int \frac{x^{p-1}(1-x)^{q-1}\,dx}{(1+sx)^{p+q}} = \frac{1}{(1+s)^p} \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}$ (VIII, 513).

9) $\int \frac{x^{p-1}(1-x)^{q-1}\,dx}{(1+sx)^r} = \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)} \sum_0^\infty \frac{r^{n/1}}{1^{n/1}} \frac{p^{n/1}}{(p+q)^{n/1}} s^n$ (VIII, 513).

10) $\int \frac{x^{r-1}(1-x)^{q-r-1}\,dx}{(1-sx)^p} = \frac{\Gamma(r)\Gamma(q-r)}{\Gamma(q)} \sum_0^\infty \binom{p}{n} \frac{r^{n/1}}{q^{n/1}} s^n$ (VIII, 476).

11) $\int \frac{x^q\,dx}{(1+x^2)^2} = \frac{1-q}{8}\left\{Z'\left(\frac{q+3}{4}\right) - Z'\left(\frac{q+1}{4}\right)\right\} + \frac{1}{4}$ (IV, 32).

12) $\int \frac{x^{2p-2}\,dx}{(1-x^2)^p} = \frac{\Gamma(2p-1)\Gamma(1-p)}{2^{2p-1}\Gamma(p)}$ (IV, 33).

13) $\int \frac{x^{pi}+x^{-pi}}{(1+x^q)^2} x^{q-1}\,dx = \frac{\pi}{q^2} \frac{p}{e^{\frac{p\pi}{q}} - e^{-\frac{p\pi}{q}}}$ (IV, 33).

F. Alg. rat. fract. à dén. $(a \pm b x^c)^d x^e$. TABLE 4. Lim. 0 et 1.

1) $\int \frac{x^{p-1}+x^{-p}}{1+x}\,dx = \pi\, Cosec\, p\pi$ (VIII, 486).

2) $\int \frac{x^p - x^{-p}}{1+x}\,dx = \frac{1}{p} - \pi\, Cosec\, p\pi$ (VIII, 532).

3) $\int \frac{x^{-p} - x^p}{1-x}\,dx = \frac{1}{p} - \pi\, Cot\, p\pi$ (VIII, 620).

4) $\int \frac{x^{p-1} - x^{-p}}{1-x}\,dx = \pi\, Cot\, p\pi$ (VIII, 485).

5) $\int \frac{x^q - x^p}{1-x} \frac{dx}{x} = Z'(p) - Z'(q)$ (IV, 33).

6) $\int \left(\frac{1-x}{x}\right)^p \frac{dx}{1-x} = \pi\, Cosec\, p\pi$ (VIII, 486).

7) $\int \frac{x^p + x^{-p}}{1+x^2}\,dx = \frac{1}{2}\pi\, Sec\, \frac{1}{2}p\pi\ [p<1]$ (VIII, 296).

8) $\int \frac{x^p - x^{-p}}{1+x^2}\,x\,dx = \frac{1}{p} - \frac{1}{2}\pi\, Cosec\, \frac{1}{2}p\pi$ V. T. 4, N. 2.

9) $\int \frac{(x^p+x^{-p})(x^q+x^{-q})}{1+x^2}\,dx = 2\pi \frac{Cos\, \frac{1}{2}p\pi \,.\, Cos\, \frac{1}{2}q\pi}{Cos\, p\pi + Cos\, q\pi}\ [p<1,\ q<1]$ V. T. 27, N. 5.

Lim. 0 et 1.

10) $\int \frac{(x^p - x^{-p})(x^q - x^{-q})}{1+x^2} dx = 2\pi \frac{Sin \frac{1}{2} p\pi . Sin \frac{1}{2} q\pi}{Cos p\pi + Cos q\pi}$ $[p<1,\ q<1]$ V. T. 27, N. 6.

11) $\int \frac{x^p - x^{-p}}{1-x^2} dx = -\frac{1}{2}\pi\, Tg \frac{1}{2} p\pi$ (VIII, 531).

12) $\int \frac{x^p - x^{-p}}{1-x^2} x\, dx = \frac{1}{2}\pi\, Cot \frac{1}{2} p\pi - \frac{1}{p}$ V. T. 4, N. 3.

13) $\int \frac{(x^p - x^{-p})(x^q + x^{-q})}{1-x^2} dx = \frac{-\pi\, Sin\, p\pi}{Cos p\pi + Cos q\pi}$ $[p<1]$ V. T. 27, N. 11.

14) $\int \frac{x^q + x^{-q}}{x^p + x^{-p}} \frac{dx}{x} = \frac{\pi}{2p} Sec \frac{q\pi}{2p}$ (VIII, 296*).

15 $\int \frac{x^q - x^{-q}}{x^p - x^{-p}} \frac{dx}{x} = \frac{\pi}{2p} Tang \frac{q\pi}{2p}$ (VIII, 296*).

16) $\int \frac{1}{(x^q + x^{-q})^{2p}} \frac{dx}{x} = \frac{\{\Gamma(p)\}^2}{4q . \Gamma(2p)}$ V. T. 27, N. 17.

17) $\int \frac{x^{q-p} + x^{p-q}}{\left(x+\frac{1}{x}\right)^{p+q}} \frac{dx}{x} = \frac{1}{2} \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}$ V. T. 3, N. 3.

18) $\int \frac{\left(x - \frac{1}{x}\right)^{2q}}{\left(x^2 + \frac{1}{x^2}\right)^{p+\frac{1}{2}}} \left(x + \frac{1}{x}\right) \frac{dx}{x} = Cos\, q\pi . 2^{q-p-1} \frac{\Gamma(q+\frac{1}{2})\Gamma(p-q)}{\Gamma(p+\frac{1}{2})}$ (VIII, 293).

F. Alg. rat. fract. à dén. produit de bin. TABLE 5.

Lim. 0 et 1.

1) $\int \frac{x^{q-1}}{(1-x)^q} \frac{dx}{1+px} = \frac{\pi}{(1+p)^q} Cosec\, q\pi$ (VIII, 513).

2) $\int \frac{x^{q-1}}{(1-x)^q} \frac{dx}{x+p} = \frac{p^{q-1}}{(1+p)^q} \pi\, Cosec\, q\pi$ (VIII, 624).

3) $\int \frac{1-x^a}{(1+x)^{a+1}} \frac{dx}{1-x} = \frac{1}{2^{a+1}} \sum_1^a \frac{2^n}{n}$ (IV, 35).

4) $\int \frac{x^{q-1}}{(1-x)^{1-r}} \frac{dx}{(x+p)^{q+r}} = \frac{\Gamma(q)\Gamma(r)}{\Gamma(q+r)} \frac{1}{p^r(1+p)^q}$ (VIII, 624).

5) $\int \frac{x^{r-1}}{(1-x)^r} \frac{dx}{(1+px)^a} = \frac{\pi}{Sin\, r\pi} \frac{1}{(1+p)^r} \sum_0^\infty (-1)^n \binom{a-1}{n} \binom{r}{n} \left(\frac{p}{1+p}\right)^n$ (IV, 35).

6) $\int \frac{x^{r+p-2}}{(1-x)^p} \frac{dx}{(1+qx)^r} = (1+q)^{1-r-p} \frac{\Gamma(r+p-1)\Gamma(1-p)}{\Gamma(r)}$ $\left[\begin{matrix} r+p>1>p, \\ q+1>0 \end{matrix}\right]$ (IV, 35).

7) $\int \frac{x^{r-1}}{(1-x)^r} \frac{dx}{(1+px)(1+qx)} = \frac{\pi}{(p-q)\, Sin\, r\pi} \left\{ \frac{p}{(1+p)^r} - \frac{q}{(1+q)^r} \right\}$ (VIII, 338).

8) $\int \frac{1}{(1-x)^{1-p} x^p} \frac{dx}{q-rx} = \frac{\pi}{(q-r)^{1-p} q^p Sin\, p\pi}$ $[p<1,\ q \gtrless r]$ (VIII, 559).

9) $\int \frac{1}{(1-x)^{1-p} x^p} \frac{dx}{(q-rx)^{a+1}} = \frac{p^{a/1}}{1^{a/1}} \frac{\pi\, Cosec\, p\pi}{q^p (q-r)^{a+1-p}} \sum_0^a \frac{(1-p)(2-p)\dots(a-p-n)}{(a+p-1)(a+p-2)\dots(p+n)} \binom{a}{n}$
$\left(\frac{q-r}{q}\right)^n$ $\left[\begin{matrix} p<1, \\ q \lessgtr r \end{matrix}\right]$ (IV, 35).

10) $\int \left[\frac{x^{q-1}}{1+px} + \frac{x^{-q}}{p+x}\right] dx = \frac{\pi}{p^q} Cosec\, q\pi$ (VIII, 631).

11) $\int \left[\frac{x^{q-1}}{1-px} - \frac{x^{-q}}{p-x}\right] dx = \frac{\pi}{p^q} Cot\, q\pi$ (VIII, 631).

12) $\int \left[\frac{x^{p-1}}{1-x} - \frac{q x^{pq-1}}{1-x^q}\right] dx = l\, q$ (VIII, 268).

13) $\int \left[\frac{b x^{b-1}}{1-x^b} - \frac{x^{ab-1}}{1-x}\right] dx = \mathrm{A} + \frac{1}{b} \sum_1^b Z'\left(a + \frac{b-n}{b}\right)$ (IV, 35).

14) $\int \left[\frac{1}{1-x} - \frac{p x^{p-1}}{1-x^p}\right] dx = l\, p$ (VIII, 267).

15) $\int \left[\frac{e^{pi}}{1+e^{api} x^a} + \frac{e^{-pi}}{1+e^{-api} x^a}\right] dx = 2 \sum_0^\infty \frac{(-1)^n}{na+1} Cos\, \{(na+1)p\}$
16) $\int \left[\frac{e^{pi}}{1+e^{api} x^a} - \frac{e^{-pi}}{1+e^{-api} x^a}\right] dx = 2 \sum_0^\infty \frac{(-1)^n}{na+1} Sin\, \{(na+1)p\}$
$[a^2 p^2 < \pi^2]$ (IV, 36).

1) $\int \frac{dx}{1-2px+x^2} = \frac{1}{\sqrt{1-p^2}} Arctg\left(\sqrt{\frac{1+p}{1-p}}\right)$ $[p^2<1]$, $= \frac{1}{2\sqrt{p^2-1}} l\{p - \sqrt{p^2-1}\}$
$[p^2>1]$ (VIII, 217, 230).

2) $\int \frac{x\,dx}{1-2px+x^2} = \frac{1}{2} l\{2(1-p)\} + \frac{p}{\sqrt{1-p^2}} Arctg\left(\sqrt{\frac{1+p}{1-p}}\right)$ $[p^2<1]$, $= \frac{1}{2} l\{2(p-1)\} -$
$- \frac{p}{2\sqrt{p^2-1}} l\{p+\sqrt{p^2-1}\}$ $[p^2>1]$ (VIII, 219, 232).

3) $\int \frac{dx}{1+2x\, Cos\,\lambda + x^2} = \frac{1}{2} \lambda\, Cosec\, \lambda$ (VIII, 196).

4) $\int \frac{x\,dx}{1+2x\, Cos\,\lambda + x^2} = l\left(2\, Cos\frac{1}{2}\lambda\right) - \frac{1}{2}\lambda\, Cot\,\lambda$ (VIII, 199).

5) $\int \frac{1-x}{1-2x\, Cos\,\lambda + x^2} dx = Cosec\,\lambda \,.\, \sum_1^\infty \frac{Sin\, n\lambda}{n(n+1)}$ (VIII, 476).

6) $\int \frac{1-x^2}{1+2x\,Cos\lambda+x^2}\,dx = Cos\lambda\,.\,l\{2(1+Cos\lambda)\}+\lambda\,Sin\lambda-1$ (VIII, 338).

7) $\int \frac{x^c\,dx}{1+2x\,Cos\frac{a\pi}{b}+x^2} = \frac{1}{2b}\,Cosec\frac{a\pi}{b}\,.\,\overset{b-1}{\underset{0}{\Sigma}}(-1)^{n-1}\,Sin\frac{na\pi}{b}\,.\left\{Z'\left(\frac{b+c+n}{2b}\right)-Z'\left(\frac{c+n}{2b}\right)\right\}$

$\left[\begin{matrix}a+b\\ \text{impair}\end{matrix}\right] = \frac{1}{b}\,Cosec\frac{a\pi}{b}\,.\,\overset{\frac{1}{2}(b-1)}{\underset{0}{\Sigma}}(-1)^{n-1}\,Sin\frac{na\pi}{b}\,.\left\{Z'\left(\frac{b+c-n}{b}\right)-Z'\left(\frac{c+n}{b}\right)\right\}\left[\begin{matrix}a+b\\ \text{pair}\end{matrix}\right]$ (IV, 37).

8) $\int \frac{x^p+x^{-p}}{1+2x\,Cos\lambda+x^2}\,dx = \frac{\pi\,Sin\,p\lambda}{Sin\,p\pi\,.\,Sin\lambda}$ $[p<1]$ (VIII, 321).

9) $\int \frac{1-x\,Cos\lambda}{1-2x\,Cos\lambda+x^2}\,x^{r-1}\,dx = \overset{\infty}{\underset{0}{\Sigma}}\frac{Cos\,n\lambda}{n+r}$

10) $\int \frac{x^r\,dx}{1-2x\,Cos\lambda+x^2} = Cosec\lambda\,.\,\overset{\infty}{\underset{1}{\Sigma}}\frac{Sin\,n\lambda}{n+r}$

(9, 10) Del Grosso. Mem. Nap. T. 2, 37.

11) $\int \frac{1-x\,Cos\lambda-x^{a+1}\,Cos\{(a+1)\lambda\}+x^{a+2}\,Cos\,a\lambda}{1-2x\,Cos\lambda+x^2}\,dx = \overset{a}{\underset{0}{\Sigma}}\frac{Cos\,n\lambda}{n+1}$ (VIII, 475).

12) $\int \frac{Sin\lambda-x^a\,Sin\{(a+1)\lambda\}+x^{a+1}\,Sin\,a\lambda}{1-2x\,Cos\lambda+x^2}\,x\,dx = \overset{a}{\underset{1}{\Sigma}}\frac{Sin\,n\lambda}{n+1}$ (VIII, 476).

13) $\int \frac{Sin\lambda-q^a x^a\,Sin\{(a+1)\lambda\}+q^{a+1}x^{a+1}\,Sin\,a\lambda}{1-2qx\,Cos\lambda+q^2x^2}(1-x)^p\,dx = \Gamma(p+1)\overset{a}{\underset{1}{\Sigma}}\frac{q^{n-1}\,Sin\,n\lambda}{\Gamma(n+p+1)}1^{n-1/1}$ (VIII, 476).

14) $\int \frac{Cos\lambda-qx-q^a x^a\,Cos\{(a+1)\lambda\}+q^{a+1}x^{a+1}\,Cos\,a\lambda}{1-2qx\,Cos\lambda+q^2x^2}(1-x)^p\,dx = \Gamma(p+1)\overset{a}{\underset{1}{\Sigma}}\frac{q^{n-1}\,Cos\,n\lambda}{\Gamma(n+p+1)}1^{n-1/1}$ (VIII, 476).

15) $\int \frac{1+x^2}{1-2x^2\,Cos\lambda+x^4}\,dx = \frac{1}{4}\pi\,Cosec\frac{1}{2}\lambda$ (VIII, 218).

16) $\int \frac{x^{a-b-1}+x^{a+b-1}}{1-2x^a\,Cos\lambda+x^{2a}}\,dx = \frac{\pi\,Sin\frac{b\lambda}{a}}{a\,Sin\lambda\,.\,Sin\frac{b\pi}{a}}$ V. T. 6, N. 8.

17) $\int \frac{x^c\,dx}{\left(1+2x\,Cos\frac{a\pi}{b}+x^2\right)^2} = \frac{1}{4b\,Sin^3\frac{a\pi}{b}}\left\{\frac{1}{2}+\overset{b-1}{\underset{0}{\Sigma}}(-1)^{n-1}\,Sin\frac{na\pi}{b}\,.\left[(1-c)\left\{Z'\left(\frac{b+c+n}{2b}\right)-\right.\right.\right.$

$\left.\left.\left.-Z'\left(\frac{c+n}{2b}\right)\right\}-c\,Cos\frac{a\pi}{b}\,.\left\{Z'\left(\frac{b+c+n-1}{2b}\right)-Z'\left(\frac{c+n-1}{2b}\right)\right\}\right]\right\}$ $\left[\begin{matrix}a+b\\ \text{impair}\end{matrix}\right] =$

$= \frac{1}{2b\,Sin^3\frac{a\pi}{b}}\left\{\frac{1}{2}+\overset{\frac{1}{2}(b-1)}{\underset{0}{\Sigma}}(-1)^{n-1}\,Sin\frac{na\pi}{b}\,.\left[(1-c)\left\{Z'\left(\frac{b+c-n}{b}\right)-Z'\left(\frac{c+n}{b}\right)\right\}-\right.\right.$

$\left.\left.-c\,Cos\frac{a\pi}{b}\,.\left\{Z'\left(\frac{b+c-n-1}{b}\right)-Z'\left(\frac{c+n-1}{b}\right)\right\}\right]\right\}$ $\left[\begin{matrix}a+b\\ \text{pair}\end{matrix}\right]$ V. T. 6, N. 7.

18) $\int \frac{x^{1+p}+x^{1-p}}{(1+2x\operatorname{Cos}\lambda+x^2)^2}\,dx=\frac{\pi\operatorname{Cosec}p\pi}{2\operatorname{Sin}^3\lambda}\left\{p\operatorname{Sin}\lambda.\operatorname{Cos}p\lambda-\operatorname{Cos}\lambda.\operatorname{Sin}p\lambda\right\}$ V. T. 6, N. 8.

19) $\int \frac{x^p+x^{-p}}{x^q+2\operatorname{Cos}\lambda+x^{-q}}\frac{dx}{x}=\frac{\pi}{q}\frac{\operatorname{Sin}\frac{p\lambda}{q}}{\operatorname{Sin}\lambda.\operatorname{Sin}\frac{p\pi}{q}}$ V. T. 6, N. 8.

20) $\int \frac{x^p-2\operatorname{Cos}\lambda+x^{-p}}{x^q-2\operatorname{Cos}\mu+x^{-q}}\frac{dx}{x}=\frac{\pi}{q}\frac{\operatorname{Sin}\left(\frac{\pi-\mu}{q}p\right)}{\operatorname{Sin}\mu.\operatorname{Sin}\frac{p\pi}{q}}-\frac{\pi-\mu}{q\operatorname{Sin}\mu}\operatorname{Cos}\lambda$ V. T. 6, N. 3 et 8.

21) $\int \frac{x^{q-1}}{1+2px\operatorname{Cos}\lambda+p^2x^2}\frac{dx}{(1-x)^q}=\frac{\pi}{\operatorname{Sin}q\pi.\operatorname{Sin}\lambda.(1+2p\operatorname{Cos}\lambda+p^2)^{\frac{1}{2}q}}\operatorname{Sin}\left\{\lambda-q\operatorname{Arctg}\left(\frac{p\operatorname{Sin}\lambda}{1+p\operatorname{Cos}\lambda}\right)\right\}$ (IV, 38).

F. Alg. irrat. ent. et à dén. monôme. TABLE 7. Lim. 0 et 1.

1) $\int (1-x^2)^{a-\frac{1}{2}}\,dx=\frac{1^{a/2}}{1^{a/1}}\frac{\pi}{2^{a+1}}$ V. T. 8, N. 13.

2) $\int x^{2a-1}\,dx\sqrt{1-x^2}=\frac{2^{a-1/2}}{3^{a/2}}$ (VIII, 238).

3) $\int x^{2a}\,dx\sqrt{1-x^2}=\frac{3^{a-1/2}}{4^{a/2}}\frac{\pi}{4}$ (VIII, 238).

4) $\int x^{2a}(1-x^2)^{b-\frac{1}{2}}\,dx=\frac{1^{a/2}\,1^{b/2}}{1^{a+b/1}}\frac{\pi}{2^{a+b+1}}$ (VIII, 238).

5) $\int x^{2a-1}(1-x^2)^{b-\frac{1}{2}}\,dx=\frac{2^{a-1/2}}{(2b+1)^{a/2}}$ (VIII, 238).

6) $\int (1-x^2)^{1-\frac{1}{2}q}(1-p^2x^2)^{1-\frac{1}{2}q}x^q\,dx=\frac{\Gamma\left(\frac{q+1}{2}\right)\Gamma\left(2-\frac{q}{2}\right)}{\sqrt{\pi}\,(q-1)\,(q-3)\,(q-5)}\frac{1}{p^3}\left\{\frac{1+(q-3)p+p^2}{(1+p)^{q-2}}-\right.$
$\left.-\frac{1-(q-3)p+p^2}{(1-p)^{q-2}}\right\}$ (IV, 39).

7) $\int (1-\sqrt{x})^{p-1}\,dx=\frac{2}{p(p+1)}$ (VIII, 320).

8) $\int (1-x)^{r-1}\frac{dx}{\sqrt{x}}=\frac{\Gamma(r)\sqrt{\pi}}{\Gamma(r+\frac{1}{2})}$ (VIII, 295).

F. Alg. irrat. fract. à dén. $(1\pm x)^a$, $(1\pm x^2)^a$. TABLE 8. Lim. 0 et 1.

1) $\int \frac{x^a\,dx}{\sqrt{1-x}}=2\frac{2^{a/2}}{3^{a/2}}$ (VIII, 289*).

2) $\int \frac{x^{a-\frac{1}{2}}\,dx}{\sqrt{1-x}}=\frac{1^{a/2}}{2^{a/2}}\pi$ V. T. 8, N. 13.

3) $\int dx\sqrt{\frac{1-p^2x}{1-x}}=1+\frac{1-p^2}{2p}\,l\frac{1+p}{1-p}$ $[p<1]$ V. T. 53, N. 2.

4) $\int x\,dx\sqrt{\frac{1-p^2x}{1-x}}=\frac{3p^2-1}{4p^2}+\frac{1+3p^2}{8}\,\frac{1-p^2}{p^3}\,l\frac{1+p}{1-p}$ V. T. 53, N. 9.

5) $\int x^2\,dx\sqrt{\frac{1-p^2x}{1-x}}=\frac{(5p^2-3)(3p^2+1)}{24p^4}+\frac{1+2p^2+5p^4}{16}\,\frac{1-p^2}{p^5}\,l\frac{1+p}{1-p}$ V. T. 53, N. 18.

6) $\int dx\sqrt{\frac{(1-p^2x)^3}{1-x}}=\frac{5-3p^2}{4}+\frac{3}{8}\,\frac{(1-p^2)^2}{p}\,l\frac{1+p}{1-p}$ V. T. 54, N. 2.

7) $\int x\,dx\sqrt{\frac{(1-p^2x)^3}{1-x}}=\frac{-3+22p^2-15p^4}{24p^2}+\frac{1+5p^2}{16}\,\frac{(1-p^2)^2}{p^3}\,l\frac{1+p}{1-p}$ V. T. 54, N. 5.

[Dans N. 3 à 7 on a $p<1$]

8) $\int\frac{x^{a-1}+x^{a-\frac{1}{2}}-2x^{2a-1}}{1-x}\,dx=2\,l2$ (IV, 47).

9) $\int\frac{x^{a-1}+x^{a-\frac{2}{3}}+x^{a-\frac{1}{3}}-3x^{3a-1}}{1-x}\,dx=3\,l3$ (IV, 47).

10) $\int\frac{x^{p-\frac{1}{2}}\,dx}{(1-x)^{2p}}=\frac{2^{1-2p}}{1-2p}\,\frac{\Gamma(p+\frac{1}{2})\Gamma(1-p)}{\sqrt{\pi}}$ $[p<\frac{1}{2}]$ (IV, 43).

11) $\int\frac{x^{p+\frac{1}{2}}\,dx}{(1-x)^{p+\frac{1}{2}}}=\frac{2p+1}{2}\,\pi\,Sec\,p\pi$ V. T. 3, N. 4.

12) $\int\frac{x^{p-\frac{1}{2}}\,dx}{(1-x)^{p+\frac{1}{2}}}=\pi\,Sec\,p\pi$ V. T. 3, N. 5.

13) $\int\frac{x^{2a}\,dx}{\sqrt{1-x^2}}=\frac{1^{a/2}}{2^{a/2}}\,\frac{\pi}{2}$ (VIII, 239).

14) $\int\frac{x^{2a-1}\,dx}{\sqrt{1-x^2}}=\frac{2^{a-1/2}}{1^{a/2}}$ (VIII, 239).

15) $\int dx\sqrt{\frac{1-p^2x^2}{1-x^2}}=E'(p)$ (VIII, 549).

16) $\int x^2\,dx\sqrt{\frac{1-p^2x^2}{1-x^2}}=\frac{1}{3p^2}\,[(1-p^2)F'(p)-(1-2p^2)E'(p)]$ (VIII, 549).

17) $\int x^4\,dx\sqrt{\frac{1-p^2x^2}{1-x^2}}=\frac{1}{15p^4}\,[2(1+2p^2)(1-p^2)F'(p)-(2+3p^2-8p^4)E'(p)]$ V. T. 53, N. 13.

18) $\int x^6\,dx\sqrt{\frac{1-p^2x^2}{1-x^2}}=\frac{1}{105p^6}\,[(8+13p^2+24p^4)(1-p^2)F'(p)-(8+9p^2+16p^4-48p^6)E'(p)]$

V. T. 53, N. 24.

19) $\int dx\sqrt{\frac{(1-p^2x^2)^3}{1-x^2}}=\frac{2-p^2}{3}\,2E'(p)-\frac{1-p^2}{3}\,F'(p)$ (VIII, 549).

20) $\int x^2\,dx\sqrt{\frac{(1-p^2x^2)^3}{1-x^2}}=\frac{1}{15p^2}\,[(3-4p^2)(1-p^2)F'(p)-(3-13p^2+8p^4)E'(p)]$ V. T. 54, N. 3.

21) $\int x^4\,dx\sqrt{\frac{(1-p^2x^2)^3}{1-x^2}}=\frac{1}{35p^4}\,[(2+5p^2-8p^4)(1-p^2)F'(p)-(1+2p^2-12p^4+8p^6)2E'(p)]$

V. T. 54, N. 7. [Dans N. 15 à 21 on a $p<1$]

22) $\int \frac{dx \sqrt[3]{x}}{\sqrt{1-x^2}} = \frac{1-\sqrt{3}}{\sqrt[4]{3}} \mathrm{F}'\left(Cos \frac{\pi}{12}\right) + 2\sqrt[4]{3} \,.\, \mathrm{E}'\left(Cos \frac{\pi}{12}\right)$ (VIII, 301).

23) $\int \frac{dx \sqrt[3]{x^2}}{\sqrt{1-x^2}} = 3\sqrt[4]{3} \,.\, \mathrm{E}'\left(Sin \frac{\pi}{12}\right) - \frac{3+3\sqrt{3}}{2\sqrt[4]{3}} \mathrm{F}'\left(Sin \frac{\pi}{12}\right)$ (VIII, 302).

24) $\int \frac{x^{p-\frac{1}{2}} dx}{(1-x^2)^p} = \frac{2^{\frac{1}{2}-p}}{2p-1} \frac{\Gamma(p+\frac{1}{2})\Gamma(1-p)}{\sqrt{\pi}} \,.\, Sin\left(\frac{2p-1}{4}\pi\right)$ $[p<1]$ (IV, 43).

25) $\int \frac{x^{p-1}+x^{q-1}}{(1-x^2)^{\frac{1}{2}(p+q)}} dx = \frac{Cos\left(\frac{q-p}{4}\pi\right)}{2\,Cos\left(\frac{q+p}{4}\pi\right)} \frac{\Gamma(\frac{1}{2}p)\Gamma(\frac{1}{2}q)}{\Gamma\{\frac{1}{2}(p+q)\}}$ (IV, 44).

26) $\int \frac{x^{p-1}-x^{q-1}}{(1-x^2)^{\frac{1}{2}(p+q)}} dx = \frac{Sin\left(\frac{q-p}{4}\pi\right)}{2\,Sin\left(\frac{q+p}{4}\pi\right)} \frac{\Gamma(\frac{1}{2}p)\Gamma(\frac{1}{2}q)}{\Gamma\{\frac{1}{2}(p+q)\}}$ (IV, 44).

27) $\int dx \sqrt{\frac{1-x^2}{1+x^2}} = \sqrt{2} \,.\, \left[\mathrm{F}'\left(Sin \frac{\pi}{4}\right) - \mathrm{E}'\left(Sin \frac{\pi}{4}\right)\right]$ (VIII, 321).

F. Alg. irrat. fract. à dén. $(1-x^a)^b$. TABLE 9. Lim. 0 et 1.

1) $\int \frac{dx}{\sqrt{1-x^3}} = \frac{2}{\sqrt[4]{27}} \mathrm{F}'\left(Sin \frac{\pi}{12}\right)$ (IV, 44).

2) $\int \frac{dx}{\sqrt[3]{1-x^3}} = \frac{2\pi}{3\sqrt{3}} =$ 3) $\int \frac{x\,dx}{\sqrt[3]{1-x^3}^{\,2}}$ (VIII, 292).

4) $\int \frac{x\,dx}{\sqrt[3]{1-x^3}} = \frac{\sqrt[3]{4}}{2\sqrt[4]{3}} \frac{\pi}{\mathrm{F}'\left(Cos \frac{\pi}{12}\right)}$ (IV, 44).

5) $\int \frac{dx}{\sqrt[3]{1-x^3}^{\,2}} = \frac{4}{3\sqrt[3]{4}\,.\,\sqrt[4]{3}} \mathrm{F}'\left(Cos \frac{\pi}{12}\right)$ (IV, 44).

6) $\int \frac{x^{3a}\,dx}{\sqrt[3]{1-x^3}} = \frac{1^{a/3}}{3^{a/3}} \frac{2\pi}{3\sqrt{3}}$ (IV, 44).

7) $\int \frac{x^{3a-1}\,dx}{\sqrt[3]{1-x^3}} = \frac{3^{a-1/3}}{2^{a/3}}$ (IV, 44).

8) $\int \frac{dx}{\sqrt{1-x^4}} = \frac{1}{2}\sqrt{2} \,.\, \mathrm{F}'\left(Sin \frac{\pi}{4}\right)$ (VIII, 298).

9) $\int \frac{x^2\,dx}{\sqrt{1-x^4}} = \sqrt{2} \,.\, \mathrm{E}'\left(Sin \frac{\pi}{4}\right) - \frac{1}{\sqrt{2}} \mathrm{F}'\left(Sin \frac{\pi}{4}\right)$ (VIII, 321).

10) $\int \frac{dx}{\sqrt[4]{1-x^4}} = \frac{\pi}{2\sqrt{2}} =$ 11) $\int \frac{x^2\,dx}{\sqrt[4]{1-x^4}^{\,3}}$ (VIII, 292).

12) $\int dx \sqrt{\frac{1-p^2x^4}{1-x^4}} = \frac{c\,\mathrm{F}'(c)+b\,\mathrm{F}'(b)}{(b+c)^2} + \frac{b-c}{(b+c)^2}\{\mathrm{E}'(b)-\mathrm{E}'(c)\}$ $\left[\text{où } b^2 = \frac{(1+\sqrt{p})^2}{2(1+p)},\; c^2 = \frac{(1-\sqrt{p})^2}{2(1+p)}\right]$ (IV, 45).

13) $\int \frac{dx}{\sqrt{1-x^6}} = \frac{1}{\sqrt[4]{3}} E'\left(Sin\,\frac{\pi}{12}\right)$ (IV, 45).

14) $\int \frac{dx}{\sqrt[6]{1-x^6}} = \frac{\pi}{3} =$ 15) $\int \frac{x^4\,dx}{\sqrt[6]{1-x^6}^{\,5}}$ (VIII, 292).

16) $\int \frac{dx}{\sqrt{1-x^8}} = \frac{1}{\sqrt{2}} F'\left(Tang\,\frac{\pi}{8}\right)$ (IV, 45).

17) $\int \frac{dx}{\sqrt{1-x^{12}}} = \frac{1}{2\sqrt[4]{3}} F'\left(Sin\,\frac{\pi}{4}\right) + Sin\,\frac{\pi}{12}\,.\,F'\left(\frac{\sqrt{2}-\sqrt[4]{3}}{1+\sqrt{3}}\right)$ (IV, 45).

18) $\int \frac{dx}{\sqrt[q]{1-x^q}} = \frac{\pi}{q}\,Cosec\,\frac{\pi}{q} =$ 19) $\int \frac{x^{q-2}\,dx}{\sqrt[q]{1-x^q}^{\,q-1}}$ (VIII, 292).

20) $\int \frac{x^{p-1}\,dx}{\sqrt[q]{1-x^q}^{\,p}} = \frac{\pi}{q}\,Cosec\,\frac{p\pi}{q} =$ 21) $\int \frac{x^{q-p-1}\,dx}{\sqrt[q]{1-x^q}^{\,q-p}}$ (VIII, 292).

22) $\int \frac{x^{q+p-1}\,dx}{\sqrt[q]{1-x^q}^{\,p}} = \frac{p\pi}{q^2}\,Cosec\,\frac{p\pi}{q}$ V. T. 3, N. 4.

23) $\int \frac{x^{\frac{q}{p}-1}\,dx}{\sqrt[p]{1-x^q}} = \frac{\pi}{q}\,Cosec\,\frac{\pi}{p}$ (VIII, 293).

F. Alg. irrat. fract. à dén. comp. avec fact. mon. TABLE 10. Lim. 0 et 1.

1) $\int \frac{\sqrt{x}+\sqrt{\frac{1}{x}}}{1+x^2}\,dx = \frac{1}{2}\pi\sqrt{2}$ (IV, 47).

2) $\int \frac{x^a\,dx}{\sqrt{x(1-x)}} = \frac{1^{a/2}}{2^{a/2}}\pi$ (VIII, 289*).

3) $\int \frac{(1-x)^a\,dx}{\sqrt{x(1-x)}} = \frac{1^{a/2}}{2^{a/2}}\pi$ V. T. 8, N. 13.

4) $\int \frac{(1-x)^a x^b\,dx}{\sqrt{x(1-x)}} = \frac{1^{a/2}\,1^{b/2}}{2^{a+b/2}}\pi$ V. T. 7, N. 4.

5) $\int \frac{dx}{x^{\frac{1}{3}}\sqrt{1-x^2}} = \frac{1}{\sqrt[4]{3}} F'\left(Cos\,\frac{\pi}{12}\right)$ (VIII, 301).

6) $\int \frac{dx}{x^{\frac{2}{3}}\sqrt{1-x^2}} = \frac{3}{\sqrt[4]{3}} F'\left(Sin\,\frac{\pi}{12}\right)$ (VIII, 303).

7) $\int dx\sqrt{\frac{1-p^2x}{x(1-x)}} = E'(p)$ V. T. 53, N. 1.

8) $\int dx\sqrt{\frac{(1-p^2x)^3}{x(1-x)}} = 4\,\frac{2-p^2}{3}\,E'(p) - \frac{1-p^2}{3}\,2F'(p)$ V. T. 54, N. 1.

9) $\int \frac{1}{q-px}\,\frac{dx}{\sqrt{x(1-x)}} = \frac{\pi}{\sqrt{q(q-p)}}$ $[0 < p < q]$ (VIII, 559).

10) $\int \frac{1}{(q-px)^{a+1}}\,\frac{dx}{\sqrt{x(1-x)}} = \frac{1^{a/2}}{2^{a/2}}\,\frac{\pi}{(q-p)^a\sqrt{q(q-p)}}\sum_0^\infty \binom{a}{n}\frac{1^{n/2}}{(2a-1)^{n/-2}}\left(\frac{q-p}{q}\right)^n$ $[p \lessgtr q]$ (IV, 48).

11) $\int \frac{dx}{\sqrt{x(p+x)(1+px)}} = F'\{\sqrt{1-p^2}\}$ (VIII, 353).

12) $\int \frac{dx}{\sqrt{x(1-x)(1-p^2x)}} = 2\,F'(p)$ V. T. 57, N. 1.

13) $\int \frac{dx}{\sqrt{x(1-x)(1-p^2x)^3}} = \frac{2}{1-p^2}\,E'(p)$ V. T. 58, N. 1.

14) $\int \frac{dx}{\sqrt{x(1-x)(1-p^2x)^5}} = \frac{2}{3(1-p^2)^2}\left[2(2-p^2)E'(p)-(1-p^2)F'(p)\right]$ V. T. 59, N. 1.

15) $\int \frac{dx}{\sqrt{x(1-x)(1-px)(q+px)}} = \frac{2}{\sqrt{p+q}}\,F'\left\{\sqrt{\frac{p(1+q)}{p+q}}\right\}$ (VIII, 312*).

16) $\int \frac{p^2-b^2-2p^2x}{\sqrt{x(b^2+p^2x)(b^2-p^2+p^2x)(1-x)}}\,dx = -\frac{\pi}{2}$ (VIII, 296).

17) $\int \frac{1}{1-2x\,Cos\,\lambda+x^2}\,\frac{dx}{\sqrt{x}} = 2\,Cosec\,\lambda\,.\sum_0^\infty \frac{Sin\,n\lambda}{2n-1}$ Del Grosso. Mem. Nap. T. 2, 37.

F. Alg. irrat. fract. à dén. à deux fact. $(1\pm x)$. TABLE 11. Lim. 0 et 1.

1) $\int \frac{x^{p-\frac{1}{2}}\,dx}{(1-x)^p(1+qx)^p} = \frac{2\,\Gamma(p+\frac{1}{2})\,\Gamma(1-p)}{\sqrt{\pi}}\,.\,Cos^{2p}\left\{Arctg(\sqrt{q})\right\}\,.\,\frac{Sin\left\{(2p-1)\,Arctg(\sqrt{q})\right\}}{(2p-1)\,Sin\left\{Arctg(\sqrt{q})\right\}}$

2) $\int \frac{x^{p-\frac{1}{2}}\,dx}{(1-x)^p(1-qx)^p} = \frac{\Gamma(p+\frac{1}{2})\,\Gamma(1-p)}{\sqrt{\pi}}\,\frac{(1-\sqrt{q})^{1-2p}-(1+\sqrt{q})^{1-2p}}{(2p-1)\sqrt{q}}$

(1 et 2) $\left[\begin{matrix} p<1, \\ q<1 \end{matrix}\right]$ (VIII, 513).

3) $\int \frac{dx}{(1-px)\sqrt{1-x}} = \frac{1}{2\sqrt{p(1-p)}}\,Arcsin(\sqrt{p})$ (VIII, 466*).

4) $\int \frac{dx}{\sqrt{(1+p^2x)(1-x)}} = \frac{2}{p}\,Arctg\,p$ V. T. 60, N. 5.

5) $\int \frac{x\,dx}{\sqrt{(1+p^2x)(1-x)}} = \frac{2}{p^2}\left(Arctg\,p-\frac{p}{1+p^2}\right)$ V. T. 60, N. 6.

6) $\int \frac{dx}{\sqrt{(1-p^2x)(1-x)}} = \frac{1}{p}\,l\,\frac{1+p}{1-p}$ V. T. 57, N. 2.

7) $\int \frac{x\,dx}{\sqrt{(1-p^2x)(1-x)}} = -\frac{1}{p^2}+\frac{1+p^2}{2p^3}\,l\,\frac{1+p}{1+p}$ V. T. 57, N. 8.

8) $\int \frac{x^2\,dx}{\sqrt{(1-p^2x)(1-x)}} = \frac{1}{4p^4}\left[-3(1+p^2)+\frac{3+2p^2+3p^4}{2p}\,l\,\frac{1+p}{1-p}\right]$ V. T. 57, N. 17.

9) $\int \frac{dx}{\sqrt{(1-x)(1-p^2x)^3}} = \frac{2}{1-p^2}$ V. T. 58, N. 2.

10) $\int \frac{x\,dx}{\sqrt{(1-x)(1-p^2x)^3}} = \frac{2}{(1-p^2)p^2} - \frac{1}{p^3}\, l\frac{1+p}{1-p}$ V. T. 58, N. 8.

11) $\int \frac{x^2\,dx}{\sqrt{(1-x)(1-p^2x)^3}} = \frac{1}{1-p^2}\left[2\,\frac{3-p^2}{p^4} - \frac{3+p^2}{p^5}(1-p^2)\, l\frac{1+p}{1-p}\right]$ V. T. 58, N. 17.

12) $\int \frac{dx}{\sqrt{(1-x)(1-p^2x)^5}} = 2\,\frac{3-p^2}{3(1-p^2)^2}$ V. T. 59, N. 2.

13) $\int \frac{x\,dx}{\sqrt{(1-x)(1-p^2x)^5}} = \frac{4}{3(1-p^2)^2}$ V. T. 59, N. 8.

14) $\int \frac{x^2\,dx}{\sqrt{(1-x)(1-p^2x)^5}} = \frac{2}{3(1-p^2)^2}\left[\frac{-3+5p^2}{p^4} + 3\,\frac{(1-p^2)^2}{p^5}\, l\frac{1+p}{1-p}\right]$ V. T. 59, N. 17.

15) $\int \frac{dx\sqrt{x}}{\sqrt{(1-x)(1-p^2x)}} = \frac{2}{p^2}\,[F'(p) - E'(p)]$ V. T. 57, N. 5.

16) $\int \frac{x\,dx\sqrt{x}}{\sqrt{(1-x)(1-p^2x)}} = \frac{2}{3p^4}\,[(2+p^2)F'(p) - 2(1+p^2)E'(p)]$ V. T. 57, N. 12.

17) $\int \frac{x^2\,dx\sqrt{x}}{\sqrt{(1-x)(1-p^2x)}} = \frac{2}{15p^6}\,[(8+3p^2+4p^4)F'(p) - (8+7p^2+8p^4)E'(p)]$ V. T. 57, N. 23.

18) $\int \frac{dx\sqrt{x}}{\sqrt{(1-x)(1-p^2x)^3}} = \frac{2}{(1-p^2)p^2}\,[E'(p) - (1-p^2)F'(p)]$ V. T. 58, N. 5.

19) $\int \frac{x\,dx\sqrt{x}}{\sqrt{(1-x)(1-p^2x)^3}} = \frac{2}{(1-p^2)p^4}\,[(2-p^2)E'(p) - 2(1-p^2)F'(p)]$ V. T. 58, N. 12.

20) $\int \frac{x^2\,dx\sqrt{x}}{\sqrt{(1-x)(1-p^2x)^3}} = \frac{2}{3(1-p^2)p^6}\,[(8-3p^2-2p^4)E'(p) - (8+p^2)(1-p^2)F'(p)]$
V. T. 58, N. 23.

21) $\int \frac{dx\sqrt{x}}{\sqrt{(1-x)(1-p^2x)^5}} = \frac{2}{3(1-p^2)^2p^2}\,[(1+p^2)E'(p) - (1-p^2)F'(p)]$ V. T. 59, N. 5.

22) $\int \frac{x\,dx\sqrt{x}}{\sqrt{(1-x)(1-p^2x)^5}} = \frac{2}{3(1-p^2)^2p^4}\,[(2-3p^2)(1-p^2)F'(p) - 2(1-2p^2)E'(p)]$
V. T. 59, N. 12.

23) $\int \frac{x^2\,dx\sqrt{x}}{\sqrt{(1-x)(1-p^2x)^5}} = \frac{2}{3(1-p^2)^2p^6}\,[(8-9p^2)(1-p^2)F'(p) - (8-13p^2+3p^4)E'(p)]$
V. T. 59, N. 23.

F. Alg. irrat. fract. à dén. à deux fact. $(1 \pm x^2)$ TABLE 12. Lim. 0 et 1.

1) $\int \frac{dx}{(p^2-x^2)\sqrt{1-x^2}} = 0\ [p^2 < 1] = \frac{\pi}{2\sqrt{p^2-1}}\ [p^2 > 1]$ (VIII, 198).

2) $\int \frac{1}{1+qx^2} \frac{dx}{\sqrt{1-x^2}} = \frac{\pi}{2\sqrt{1+q}}$ (VIII, 303).

3) $\int \frac{x^2}{1+qx^2} \frac{dx}{\sqrt{1-x^2}} = \frac{\pi}{2q} \left\{1 - \frac{1}{\sqrt{1+q}}\right\}$ (VIII, 357).

4) $\int \frac{x^4}{1+qx^2} \frac{dx}{\sqrt{1-x^2}} = \frac{\pi}{4q^2} \left\{q - 2 + \frac{2}{\sqrt{1+q}}\right\}$ (VIII, 357).

5) $\int \frac{x}{1-p^2x^2} \frac{dx}{\sqrt{1-x^2}} = \frac{1}{p\sqrt{1-p^2}} \mathit{Arcsin}\, p$ (VIII, 466*).

6) $\int \frac{x\,dx}{\sqrt{(p^2+x^2)(1-x^2)}} = \mathit{Arccot}\, p$ (VIII, 197).

7) $\int \frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}} = \mathrm{F}'(p)$ (VIII, 549).

8) $\int \frac{x\,dx}{\sqrt{(1-x^2)(1-p^2x^2)}} = \frac{1}{2p}\, l \frac{1+p}{1-p}$ V. T. 57, N. 2.

9) $\int \frac{x^2\,dx}{\sqrt{(1-x^2)(1-p^2x^2)}} = \frac{1}{p^2} [\mathrm{F}'(p) - \mathrm{E}'(p)]$ (VIII, 549).

10) $\int \frac{x^3\,dx}{\sqrt{(1-x^2)(1-p^2x^2)}} = -\frac{1}{2p^2} + \frac{1+p^2}{4p^3}\, l \frac{1+p}{1-p}$ V. T. 57, N. 8.

11) $\int \frac{x^4\,dx}{\sqrt{(1-x^2)(1-p^2x^2)}} = \frac{1}{3p^4} [(2+p^2)\mathrm{F}'(p) - (1+p^2)2\mathrm{E}'(p)]$ (VIII, 549).

12) $\int \frac{x^5\,dx}{\sqrt{(1-x^2)(1-p^2x^2)}} = \frac{1}{8p^4} \left[-3(1+p^2) + \frac{3+2p^2+3p^4}{2p}\, l \frac{1+p}{1-p}\right]$ V. T. 57, N. 17.

13) $\int \frac{x^6\,dx}{\sqrt{(1-x^2)(1-p^2x^2)}} = \frac{1}{15p^6} [(8+3p^2+4p^4)\mathrm{F}'(p) - (8+7p^2+8p^4)\mathrm{E}'(p)]$ V. T. 57, N. 23.

14) $\int \frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}} = \frac{1}{1-p^2} \mathrm{E}'(p)$ V. T. 58, N. 1.

15) $\int \frac{x\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}} = \frac{1}{1-p^2}$ V. T. 58, N. 2.

16) $\int \frac{x^2\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}} = \frac{1}{(1-p^2)p^2} [\mathrm{E}'(p) - (1-p^2)\mathrm{F}'(p)]$ V. T. 58, N. 5.

17) $\int \frac{x^3\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}} = \frac{1}{(1-p^2)p^2} - \frac{1}{2p^3}\, l \frac{1+p}{1-p}$ V. T. 58, N. 8.

18) $\int \frac{x^4\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}} = \frac{1}{(1-p^2)p^4} [(2-p^2)\mathrm{E}'(p) - 2(1-p^2)\mathrm{F}'(p)]$ V. T. 58, N. 12.

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19) $\int \frac{x^5\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}} = \frac{1}{2}\frac{1}{1-p^2}\left[\frac{3-p^2}{p^4} - \frac{3+p^2}{2p^5}(1-p^2)\, l\frac{1+p}{1-p}\right]$ V. T. 58, N. 17.

20) $\int \frac{x^6\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}} = \frac{1}{3(1-p^2)p^6}\left[(8-3p^2-2p^4)\,E'(p) - (8+p^2)(1-p^2)\,F'(p)\right]$ V. T. 58, N. 23.

21) $\int \frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}} = \frac{1}{3(1-p^2)^2}\left[2(2-p^2)\,E'(p) - (1-p^2)\,F'(p)\right]$ V. T. 59, N. 1.

22) $\int \frac{x\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}} = \frac{3-p^2}{3(1-p^2)^2}$ V. T. 59, N. 2.

23) $\int \frac{x^2\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}} = \frac{1}{3(1-p^2)^2p^2}\left[(1+p^2)\,E'(p) - (1-p^2)\,F'(p)\right]$ V. T. 59, N. 5.

24) $\int \frac{x^3\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}} = \frac{2}{3(1-p^2)^2}$ V. T. 59, N. 8.

25) $\int \frac{x^4\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}} = \frac{1}{3(1-p^2)^2p^4}\left[(2-3p^2)(1-p^2)\,F'(p) - 2(1-2p^2)\,E'(p)\right]$ V. T. 59, N. 12.

26) $\int \frac{x^5\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}} = \frac{1}{3(1-p^2)^2}\left[\frac{-3+5p^2}{p^4} + 3\frac{(1-p^2)^2}{p^5}\, l\frac{1+p}{1-p}\right]$ V. T. 59, N. 17.

27) $\int \frac{x^6\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}} = \frac{1}{3(1-p^2)^2p^6}\left[(8-9p^2)(1-p^2)\,F'(p) - (8-13p^2+3p^4)\,E'(p)\right]$ V. T. 59, N. 23.

28) $\int \frac{dx}{\sqrt{(1-x^2)(q^2-p^2x^2)}} = \frac{1}{q}F'\left(\frac{p}{q}\right)$ (VIII, 298*). $[q>p]$

29) $\int \frac{x^2\,dx}{\sqrt{(1-x^2)(q^2-p^2x^2)}} = \frac{q}{p^2}\left\{F'\left(\frac{p}{q}\right) - E'\left(\frac{p}{q}\right)\right\}$ (VIII, 298*). $[q>p]$

30) $\int \frac{x^4\,dx}{\sqrt{(1-x^2)(q^2-p^2x^2)}} = \frac{q}{p^4}\left\{\frac{2q^2+p^2}{3}F'\left(\frac{p}{q}\right) - \frac{p^2+q^2}{3}\,2E'\left(\frac{p}{q}\right)\right\}$ (VIII, 298*). $[q>p]$

31) $\int \frac{1-x^2}{\sqrt{1+p^2x^2}^3}\,\frac{1-p^2q^2x^2}{\sqrt{1+q^2x^2}^3}\,x^2\,dx = 0$ (IV, 49).

32) $\int \frac{x^{\frac{1}{2}q}\,dx}{\{(1-x)(1-p^2x)\}^{\frac{1}{2}(q+1)}} = \frac{(1-p)^{-q}-(1+p)^{-q}}{2pq\sqrt{\pi}}\,\Gamma\left(\frac{q+2}{2}\right)\Gamma\left(\frac{1-q}{2}\right)$ (VIII, 513).

F. Alg. irrat. fract. à dén. à fact. binômes. TABLE 13. Lim. 0 et 1.

1) $\int \frac{dx}{\sqrt{(p+qx)(1-x^2)}} = \frac{2}{\sqrt{p+q}}\,F\left(\frac{\pi}{4}, \sqrt{\frac{2q}{p+q}}\right)$ (VIII, 329).

2) $\int \frac{x\,dx}{\sqrt{(p+qx)(1-x^2)}} = \frac{2}{q}\sqrt{p+q}\,.\,\mathrm{E}\left(\frac{\pi}{4}, \sqrt{\frac{2q}{p+q}}\right) - \frac{2p}{q\sqrt{p+q}}\mathrm{F}\left(\frac{\pi}{4}, \sqrt{\frac{2q}{p+q}}\right)$ (VIII, 329).

3) $\int \frac{dx}{\sqrt{(p-qx)(1-x^2)}} = \frac{2}{\sqrt{p+q}}\left\{\mathrm{F}'\left(\sqrt{\frac{2q}{p+q}}\right) - \mathrm{F}\left(\frac{\pi}{4}, \sqrt{\frac{2q}{p+q}}\right)\right\}$ (VIII, 329).

4) $\int \frac{x\,dx}{\sqrt{(p-qx)(1-x^2)}} = \frac{2p}{q\sqrt{p+q}}\left\{\mathrm{F}'\left(\sqrt{\frac{2q}{p+q}}\right) - \mathrm{F}\left(\frac{\pi}{4}, \sqrt{\frac{2q}{p+q}}\right)\right\} - \frac{2\sqrt{p+q}}{q}\left\{\mathrm{E}'\left(\sqrt{\frac{2q}{p+q}}\right) - \right.$

$\left. - \mathrm{E}\left(\frac{\pi}{4}, \sqrt{\frac{2q}{p+q}}\right)\right\}$ (VIII, 329).

5) $\int \frac{dx}{\sqrt{(1-p^2x^2)(1-x^2)(p^2x^2+Tg^2\lambda)}} = \frac{1}{\sqrt{p^2+Tg^2\lambda}}\mathrm{F}'\left\{\frac{p}{\sqrt{Sin^2\lambda + p^2 Cos^2\lambda}}\right\}$ (VIII, 312*).

6) $\int \frac{1}{1+x^4}\frac{dx}{\sqrt{1-x^4}} = \frac{\pi}{8} + \frac{1}{4}\sqrt{2}\,.\,\mathrm{F}'\left(Sin\frac{\pi}{4}\right)$ (IV, 48*). 7) $\int \frac{x^2}{1+x^4}\frac{dx}{\sqrt{1-x^4}} = \frac{\pi}{8}$ (IV, 48).

8) $\int \frac{x^4}{1+x^4}\frac{dx}{\sqrt{1-x^4}} = -\frac{\pi}{8} + \frac{1}{4}\sqrt{2}\,.\,\mathrm{F}'\left(Sin\frac{\pi}{4}\right)$ (IV, 48*).

9) $\int \left[\frac{x^{a-1}}{1-\sqrt[p]{x}} - \frac{px^{pa-1}}{1-x}\right]dx = p\,lp$ (IV, 49).

10) $\int \left[\frac{a}{1-x} - \frac{x^{p-1}}{1-\sqrt[a]{x}}\right]dx = a\mathrm{A} + \sum_1^a Z'\left(p + \frac{a-n}{a}\right)$ (IV, 49).

1) $\int \frac{dx\sqrt{x}}{1-2x\,Cos\lambda + x^2} = 2\,Cosec\lambda\,.\sum_0^\infty \frac{Sin\,n\lambda}{2n+1}$ Del Grosso, Mem. Nap. T. 2, 37.

2) $\int \frac{x^{p+\frac{1}{2}}(1-x)^{p-\frac{1}{2}}dx}{(a+bx-cx^2)^{p+1}} = \frac{\Gamma(p+\frac{1}{2})}{\Gamma(p+1)\,.\sqrt{a+b-c}}\;\frac{\sqrt{\pi}}{[c+\{\sqrt{a+b-c}+\sqrt{a}\}^2]^{p+\frac{1}{2}}}$

$[c+\{\sqrt{a+b-c}+\sqrt{a}\}^2 > 0]$ Liouville, L. Sér. 2, T. 1, 421.

3) $\int \frac{dx}{\sqrt{3-3x^2+x^4}} = \frac{1}{3\sqrt[4]{3}}\mathrm{F}'\left(Cos\frac{\pi}{12}\right)$ (VIII, 301).

4) $\int \frac{x^2\,dx}{\sqrt{3-3x^2+x^4}} = \frac{\sqrt[4]{3}}{3}\left\{\mathrm{F}'\left(Cos\frac{\pi}{12}\right) - 2\,\mathrm{E}'\left(Cos\frac{\pi}{12}\right)\right\}$ (VIII, 301).

5) $\int \frac{dx}{1-2rx+r^2}\sqrt{\frac{1-x}{1+x}} = \frac{\pi}{4r} + \frac{1}{r}\frac{1-r}{1+r}Arctg\left(\frac{1+r}{1-r}\right)$ V. T. 36, N. 11.

6) $\int \frac{dx}{1-2rx+r^2}\sqrt{\frac{1+x}{1-x}} = -\frac{\pi}{4r} - \frac{1}{r}\frac{1+r}{1-r}Arctg\left(\frac{1+r}{1-r}\right)$ V. T. 36, N. 12.

7) $\int \frac{dx}{\sqrt{(1-x^2)(1-p^2+p^2x^2)}} = F(p)$ (VIII, 304).

8) $\int \frac{dx}{\sqrt{(1+x^2)(1+x^2-p^2x^2)}} = F\left(\frac{\pi}{4}, p\right)$ (VIII, 340).

9) $\int \frac{x^2\,dx}{\sqrt{(1+x^2)(1+x^2-p^2x^2)}} = \frac{1}{1-p^2}\left\{\sqrt{\frac{2-p^2}{2}} - E\left(\frac{\pi}{4}, p\right)\right\}$ (VIII, 341).

10) $\int \frac{2p^2x^2-b^2-p^2}{\sqrt{(b+p^2-p^2x^2)\{b^2-(b^2+p^2)x^2+p^2x^4\}}}\,dx = -\frac{1}{2}\pi$ $[b \geqq 1]$ (VIII, 296*).

F. Algébrique. TABLE 15. Lim. — 1 et 1.

1) $\int \frac{(1-x^2)^{r-\frac{1}{2}}\,dx}{(Cos\lambda \pm x i Sin\lambda)^{2r}} = 2^{2r-1}\frac{\Gamma(r-\frac{1}{2})\Gamma(r+\frac{1}{2})}{\Gamma(2r)}e^{\pm 2\lambda i}$ (VIII, 316).

2) $\int \frac{(1+x)^{p-1}(1-x)^{q-1}\,dx}{\{(g-h)x+(g+h+2k)\}^{p+q}} = \frac{\Gamma(p)\Gamma(q)}{2\Gamma(p+q)}\frac{1}{(g+k)^p(h+k)^q}$ (IV, 75*).

3) $\int \frac{(1-x)^p(1+x)^q+(1-x)^q(1+x)^p}{(Cos\lambda \pm x i Sin\lambda)^{p+q}}\frac{dx}{1-x^2} = 2^{p+q}\frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}e^{\pm(p-q)\lambda i}$ (VIII, 316*).

4) $\int \frac{(1-x)^p(1+x)^q-(1-x)^q(1+x)^p}{(Cos\lambda \pm x i Sin\lambda)^{p+q}}\frac{dx}{1-x^2} = 0$ (VIII, 316*).

5) $\int \frac{dx}{\sqrt{q^2-2pqx+p^2}} = \frac{2}{p}$ $[p>q]$, $=\frac{2}{q}$ $[p<q]$ (VIII, 290*).

6) $\int \frac{qx-p}{\sqrt{q^2-2pqx+p^2}^{\,3}}\,dx = -\frac{2}{p^2}$ $[p>q]$, $=0$ $[p<q]$ (VIII, 290*).

7) $\int \frac{dx}{\sqrt{(1-2px+p^2)(1-2qx+q^2)}} = \frac{1}{\sqrt{pq}}\,l\,\frac{1+\sqrt{pq}}{1-\sqrt{pq}}\left[\begin{matrix}p^2<1,\\ q^2<1\end{matrix}\right], = \frac{1}{\sqrt{pq}}\,l\,\frac{\sqrt{p}+\sqrt{q}}{\sqrt{p}-\sqrt{q}}$ $[q^2<1<p^2]$, $=\frac{1}{\sqrt{pq}}\,l\,\frac{\sqrt{q}+\sqrt{p}}{\sqrt{q}-\sqrt{p}}$ $[p^2<1<q^2]$, $=\frac{1}{\sqrt{pq}}\,l\,\frac{\sqrt{pq}+1}{\sqrt{pq}-1}\left[\begin{matrix}p^2>1,\\ q^2>1\end{matrix}\right]$ (VIII, 291).

F. Alg. rat. fract. à dén. $(1 \pm x)^n$. TABLE 16. Lim. 0 et ∞.

1) $\int \frac{x^{p-1}\,dx}{1+qx} = \frac{\pi}{q^p}\,Cosec\,p\pi$ (VIII, 238).

2) $\int \frac{x^{1-p}\,dx}{1+x} = -\pi\,Cosec\,p\pi$ V. T. 16, N. 1.

3) $\int \left(\frac{x^p-x^{-p}}{1-x}\right)^2 dx = 2(1-2p\pi\,Cot\,2p\pi)$ $\left[p^2<\frac{1}{4}\right]$ (VIII, 324).

4) $\int \frac{x^p\,dx}{(1+qx)^2} = \frac{p\pi}{q^{p+1}}\,Cosec\,p\pi$ V. T. 16, N. 1. 5) $\int \frac{x^p\,dx}{(1+x)^3} = \frac{1-p}{2}\,p\pi\,Cosec\,p\pi$ V. T. 16, N. 7.

6) $\int \frac{dx}{(p+qx)^{a+\frac{1}{2}}} = \frac{2}{(2a-1)\,q\,p^{a-\frac{1}{2}}}$ (VIII, 290).

7) $\int \frac{x^{p-1}\,dx}{(1+x)^{p+q}} = \frac{\Gamma(p)\,\Gamma(q)}{\Gamma(p+q)} = \mathrm{B}(p,\ q) =$ 8) $\int \frac{x^{q-1}\,dx}{(1+x)^{p+q}}$ (VIII, 262).

9) $\int \frac{x^{p-1}\,dx}{(q+x)^{a+1}} = \frac{(-1)^a}{1^{a/1}}\,\frac{(p-1)^{a/-1}}{Sin\,p\pi}\,\pi\,q^{p-a-1}$ (IV, 51).

10) $\int \frac{x^{p-1}\,dx}{(1+qx)^{p+r}} = \frac{\Gamma(p)\,\Gamma(r)}{q^p\,\Gamma(p+r)}$ (VIII, 631).

11) $\int \frac{x^{a+p}\,dx}{(1+x)^{2a+2}} = \frac{(-1)^a\,\pi}{Sin\,p\pi}\,\frac{p(p^2-1^2)(p^2-2^2)\ldots(p^2-a^2)}{1^{2a+1/1}}$ $[p<a+1]$ (VIII, 235).

12) $\int \frac{x^a\,dx}{(1+x)^{a+p+1}} = \Delta^a\left(\frac{1}{p}\right)$ (IV, 51).

13) $\int \left[x^{q-p} - \frac{x^q}{(1+x)^p}\right] dx = \frac{q}{q-p+1}\,\frac{\Gamma(q)\,\Gamma(p-q)}{\Gamma(p)}$ (VIII, 686).

F. Alg. rat. fract. à dén. $(1\pm x^a)^b$. TABLE 17. Lim. 0 et ∞.

1) $\int \frac{dx}{q^2-x^2} = 0$ (VIII, 228).

2) $\int \frac{dx}{1+x^3} = \frac{2\pi}{9}\sqrt{3} =$ 3) $\int \frac{x\,dx}{1+x^3}$ (VIII, 292).

4) $\int \frac{dx}{q^3-x^3} = \frac{\pi}{2q^2\sqrt{3}}$ (VIII, 229).

5) $\int \frac{dx}{1+x^4} = \frac{1}{4}\pi\sqrt{2} =$ 6) $\int \frac{x^2\,dx}{1+x^4}$ (VIII, 292).

7) $\int \frac{dx}{1+x^6} = \frac{1}{3}\pi =$ 8) $\int \frac{x^4\,dx}{1+x^6}$ (VIII, 292).

9) $\int \frac{dx}{(\pm p+qi)^2+x^2} = \frac{\pi}{2(p\pm qi)}$ (VIII, 194).

10) $\int \frac{x^{q-1}\,dx}{1+x^p} = \frac{\pi}{p}\,Cosec\,\frac{q\pi}{p} = \frac{1}{p}\,\Gamma\left(\frac{q}{p}\right)\Gamma\left(\frac{p-q}{p}\right)$ $[p\geqq q\geqq 0]$, $=\infty$ $[q>p]$ (VIII, 224).

11) $\int \frac{x^{q-1}\,dx}{1-x^p} = \frac{\pi}{p}\,Cot\,\frac{q\pi}{p}$ $[p>q]$ (VIII, 485).

12) $\int \frac{1-x^q}{1-x^r} x^{p-1} dx = \frac{\pi \, Sin \frac{q\pi}{r}}{r \, Sin \frac{p\pi}{r} . Sin \left\{ \frac{p+q}{r} \pi \right\}}$ (VIII, 585).

13) $\int \frac{dx}{(p+qx^2)^{a+1}} = \frac{1^{a/2}}{1^{a/1}} \frac{\pi}{2^{a+1} p^a \sqrt{pq}}$ (VIII, 235).

14) $\int \frac{dx}{(1+x^2)^3} = \frac{3}{16}\pi =$ 15) $\int \frac{x^4 dx}{(1+x^2)^3}$ (VIII, 226).

16) $\int \frac{x^2 dx}{(1+x^2)^3} = \frac{1}{16}\pi$ (VIII, 226). 17) $\int \frac{dx}{(q^2-x^2)^2} = 0$ V. T. 17, N. 1.

18) $\int \frac{x^{p+q-1} dx}{(1+x^q)^2} = \frac{p\pi}{q^2} Cosec \frac{p\pi}{q}$ $[p<q]$ V. T. 17, N. 23.

19) $\int \frac{x^{p-1} dx}{(r^2+x^2)^q} = \frac{\Gamma(\frac{1}{2}p)\Gamma(q-\frac{1}{2}p)}{2\Gamma(q)} r^{p-2q}$ $[p<1]$ (VIII, 541).

20) $\int \frac{x^{p-1} dx}{(1+x^q)^a} = \left(1-\frac{p}{q}\right)\left(1-\frac{p}{2q}\right)\dots\left(1-\frac{p}{(a-1)q}\right) \frac{\pi}{q} Cosec \frac{p\pi}{q}$ (IV, 55).

21) $\int \frac{x^{2b} dx}{(p+qx^2)^{a+1}} = \frac{1^{b/2} 1^{a-b/2}}{1^{a/1}} \frac{\pi}{2^{a+1} q^b p^{a-b} \sqrt{pq}}$ $[a \geqq b]$ (VIII, 236).

22) $\int \frac{x^{g-1} dx}{(p+qx^c)^{h+1}} = \frac{(c-g)^{h/c}}{1^{h/1}} \frac{1}{(cp)^h} \frac{1}{p} \left(\frac{p}{q}\right)^{\frac{g}{c}} \frac{\pi}{c \, Sin \frac{g\pi}{c}}$ $[g<c]$ (VIII, 236).

23) $\int \frac{x^{ac+g-1} dx}{(p+qx^c)^{b+1}} = \frac{g^{a/c}(c-g)^{b-a/c}}{1^{b/1}} \frac{1}{c^g p^{b-a+1} q^a} \left(\frac{p}{q}\right)^{\frac{g}{c}} \frac{\pi}{c \, Sin \frac{g\pi}{c}}$ $\left[\begin{matrix} b+1>a, \\ g<c \end{matrix}\right]$ (VIII, 236).

F. Alg. rat. fract. à dén. à fact. mon. et bin. TABLE 18. Lim. 0 et ∞.

1) $\int \frac{dx}{(1+x)x^p} = \pi \, Cosec \, p\pi$ $[p<1]$ (VIII, 486*).

2) $\int \frac{dx}{(1-x)x^p} = -\pi \, Cot \, \pi p$ $[p<1]$ (VIII, 461).

3) $\int \frac{dx}{(1+x^2)x^p} = \frac{1+p}{2} p\pi \, Cosec \, p\pi$ V. T. 16, N. 7.

4) $\int \frac{x^p - a^{p-q} x^q}{x-a} \frac{dx}{x} = \pi a^{p-1} (Cot \, q\pi - Cot \, p\pi)$ $\left[\begin{matrix} p \leqq 1, \\ q<1 \end{matrix}\right]$ (VIII, 585*).

5) $\int \frac{(1+x)^q - 1}{(1+x)^{p+q}} \frac{dx}{x} = Z'(p+q) - Z'(p)$ (IV, 56).

6) $\int \frac{x^q-1}{x^p-x^{-p}}\frac{dx}{x}=\frac{\pi}{2p}\,Tang\,\frac{q\pi}{2p}$ (VIII, 585).

7) $\int \frac{x^{2q-1}-(p+x)^{2q-1}}{(p+x)^q x^q}\,dx=\pi\,Cot\,q\pi$ (VIII, 631).

8) $\int \frac{q(1-p)+(1-p-t+tq)x}{x^p(1+x)^{2-p-t}(x+q)^{t+1}}\,dx=1$ (VIII, 628).

9) $\int \frac{x^p-q^p}{x-1}\,\frac{x^{-p}-1}{x-q}\,dx=\frac{1}{q-1}[2\pi(q^p-1)\,Cot\,p\pi-(q^p+1)\,lq]$ $[p^2<1]$ (VIII, 324).

10) $\int\left[\frac{1}{x^p}-\frac{1}{(1+x)^p}\right]x^q\,dx=\frac{q}{q-p+1}\,\frac{\Gamma(q)\Gamma(p-q)}{\Gamma(p)}$ (VIII, 686).

11) $\int\left[\frac{1}{1+x}-\frac{1}{(1+x)^p}\right]\frac{dx}{x}=A+Z'(p)$ (VIII, 602).

12) $\int\left[\frac{1}{(1+x)^p}-\frac{1}{(1+x)^q}\right]\frac{dx}{x}=Z'(q)-Z'(p)$ V. T. 18, N. 11.

13) $\int\left[\frac{q^p x^{p-1}}{(1+qx)^p}-\frac{(1+qx)^{p-1}}{q^{p-1}x^p}\right]dx=\pi\,Cot\,p\pi$ (IV, 57).

14) $\int\left[\frac{1}{(s+px)^r}-\frac{1}{(s+qx)^r}\right]\frac{dx}{x}=\frac{1}{s^r}\,l\frac{q}{p}$ (VIII, 279).

15) $\int\left[\frac{1}{1+x^2}-\frac{1}{1+x}\right]\frac{dx}{x}=0$ (VIII, 702).

F. Alg. rat. fract. à dén. à fact. binômes. TABLE 19. Lim. 0 et ∞.

1) $\int \frac{x^p-1}{x-1}\,\frac{dx}{x+r}=\frac{\pi}{1+r}\left(\frac{r^p-Cos\,p\pi}{Sin\,p\pi}-\frac{1}{\pi}\,lr\right)$ $[p^2<1]$ (VIII, 323).

2) $\int \frac{x^p-x^q}{x-1}\,\frac{dx}{x+r}=\frac{\pi}{1+r}\left(\frac{r^p-Cos\,p\pi}{Sin\,p\pi}-\frac{r^q-Cos\,q\pi}{Sin\,q\pi}\right)$ $\left[\begin{matrix}p^2<1,\\ q^2<1\end{matrix}\right]$ (VIII, 323).

3) $\int \frac{x^p-q^p}{x-q}\,\frac{x^p-1}{x-1}\,dx=\frac{\pi}{q-1}\left(\frac{q^{2p}-1}{Sin\,2p\pi}-\frac{1}{\pi}\,q^p\,lq\right)$ $[4p^2<1]$ (VIII, 324).

4) $\int \frac{x^p-x^{p-q}}{x-1}\,\frac{x^q-r^q}{x-r}\,dx=\frac{\pi}{r-1}\,\frac{Sin\,q\pi}{Sin\,p\pi}\left(\frac{r^{p+q}-1}{Sin\{(p+q)\pi\}}+\frac{r^q-r^p}{Sin\{(p-q)\pi\}}\right)$ $\left[\begin{matrix}(p+q)^2<1,\\ (p-q)^2<1\end{matrix}\right]$ (VIII, 324).

5) $\int \frac{x^{q-\frac{1}{2}}\,dx}{[(x+r)\,(x+s)]^q}=\frac{\Gamma(q-\frac{1}{2})\sqrt{\pi}}{\Gamma(q)}\,\frac{1}{(\sqrt{r}+\sqrt{s})^{2q-1}}$ Cayley, L. Sér. 2, T. 2, 47.

6) $\int \frac{dx}{(1+x)^{1-t}(x+q)^{1+t}}=\frac{1}{t(q-1)}$ (VIII, 628).

7) $\int \frac{(r-xi)^{-p}+(r+xi)^{-p}}{2} x^{2a}\,dx = 0$ $[p>2a+1]$ (IV, 57).

8) $\int \frac{(r-xi)^{-p}-(r+xi)^{-p}}{2} x^{2a-1}\,dx = 0$ $[p>2a]$ (IV, 58).

9) $\int \frac{(1+px)^{-r}+(1+qx)^{-r}}{2} x^{s-1}\,dx = (pq)^{\frac{1}{2}s} \frac{\Gamma(s)\Gamma(r-s)}{\Gamma(r)} Cos\left\{s Arccos\left(\frac{p+q}{2\sqrt{pq}}\right)\right\}$

10) $\int \frac{(1+px)^{-r}-(1+qx)^{-r}}{2} x^{s-1}\,dx = -(pq)^{\frac{1}{2}s} \frac{\Gamma(s)\Gamma(r-s)}{\Gamma(r)} Sin\left\{s Arccos\left(\frac{p+q}{2\sqrt{pq}}\right)\right\}$ $[s<r]$ (IV, 58).

11) $\int \frac{(r-xi)^{-p}+(r+xi)^{-p}}{2} \frac{(s-xi)^{-q}+(s+xi)^{-q}}{2}\,dx = \frac{\pi}{2}(r+s)^{1-p-q}\frac{\Gamma(p+q-1)}{\Gamma(p)\Gamma(q)}$ (VIII, 679).

12) $\int \frac{(r-xi)^{-p}-(r+xi)^{-p}}{2} \frac{(s-xi)^{-q}-(s+xi)^{-q}}{2}\,dx = -\frac{\pi}{2}(r+s)^{1-p-q}\frac{\Gamma(p+q-1)}{\Gamma(p)\Gamma(q)}$ (VIII, 679).

13) $\int \left[\frac{x^q}{(1+x)^{1+q}} - \frac{x^p}{(1+x)^{1+p}}\right] dx = Z'(p+1) - Z'(q+1)$ V. T. 18, N. 12.

14) $\int \frac{x^{p-1}}{q^2+x^2} \frac{dx}{r^2-x^2} = \frac{\pi}{2} \frac{q^{p-2}+r^{p-2}\, Cos\, \frac{1}{2}p\pi}{q^2+r^2} Cosec\, \frac{1}{2}p\pi$ (IV, 59).

15) $\int \frac{x^p}{1+x^{2q}} \frac{dx}{1+x^{3q}} = \frac{\pi}{4q}\left[Cosec\left(\frac{p+1}{2q}\pi\right) + Sec\left(\frac{p+1}{2q}\pi\right)\right] +$

$+ \frac{\pi}{6q} \frac{1+4\, Cos\left(\frac{p+1}{3q} 2\pi\right) + 4\, Cos\left(\frac{p+1}{3q} 2\pi - \frac{4\pi}{3}\right)}{Sin\left(\frac{p+1}{q}\pi\right)}$ (IV, 59).

16) $\int \frac{x^{p-1}}{1+x^a} \frac{dx}{1+x^b} = \frac{\pi}{2\,a\, Sin\, p\pi} \sum_0^{a-1} \frac{Cos\left(\frac{2n-a+1}{a}p\pi\right) + Cos\left(\frac{(2n-a+1)(p-b)}{a}\pi\right)}{1+Cos\left((2n+1)\frac{b\pi}{a}\right)} +$

$+ \frac{\pi}{2\,b\, Sin\, p\pi} \sum_0^{b-1} \frac{Cos\left(\frac{2n-b+1}{b}p\pi\right) + Cos\left(\frac{(2n-b+1)(p-a)}{b}\pi\right)}{1+Cos\left((2n+1)\frac{a\pi}{b}\right)}$ (IV, 59).

17) $\int \left(\frac{x^p}{1+x^{2p}}\right)^q \frac{dx}{1-x^2} = 0$ (VIII, 278).

18) $\int \frac{(r-xi)^{-q}+(r+xi)^{-q}}{s^2+x^2}\,dx = \frac{\pi}{s(r+s)^q}$ (VIII, 679).

19) $\int \frac{(r-xi)^{-q}-(r+xi)^{-q}}{i(s^2+x^2)} x\,dx = \frac{\pi}{(r+s)^q}$ (VIII, 679).

1) $\int \frac{x^{1-p}\,dx}{r^2+(x+q)^2} = \frac{\pi}{\sqrt{q^2+r^2}^p} \frac{Sin\left\{(1-p)\,Arctg\frac{r}{q}\right\}}{Sin\,p\pi \,.\, Sin\left(Arctg\frac{r}{q}\right)}$ (VIII, 532*).

2) $\int \frac{x+q}{r^2+(x+q)^2} x^{p-1}\,dx = \frac{\pi}{\sqrt{q^2+r^2}^{1-p}} Cosec\,p\pi \,.\, Cos\left\{(p-1)\,Arctg\frac{r}{q}\right\}$ (VIII, 532).

3) $\int \frac{x^p\,dx}{q^2+2qx\,Cos\,\lambda+x^2} = \frac{\pi q^{p-1}}{Sin\,p\pi} \frac{Sin\,p\lambda}{Sin\,\lambda} \left[\begin{matrix} p^2 \lesseqgtr 1, \\ \lambda^2 < \pi^2 \end{matrix}\right]$ (VIII, 474*).

4) $\int \frac{dx}{\left[\left(gx+\frac{h}{x}\right)^2+q\right]^{p+1}} = \frac{2\Gamma(p+\frac{1}{2})\sqrt{\pi}}{g\,q^{p+\frac{1}{2}}\Gamma(p+1)}$

5) $\int \frac{g+\frac{h}{x^2}}{\left[\left(gx+\frac{h}{x}\right)^2+q\right]^{p+1}} dx = \frac{\Gamma(p+\frac{1}{2})\sqrt{\pi}}{q^{p+\frac{1}{2}}\Gamma(p+1)}$

(4, 5) Liouville, L. Sér. 2, T. 1, 421.

6) $\int \frac{dx}{(p^2+q^2)^2+2(p^2-q^2)x^2+x^4} = \frac{1}{4p} \frac{\pi}{p^2+q^2}$ (VIII, 194).

7) $\int \frac{x^2\,dx}{(p^2+q^2)^2+2(p^2-q^2)x^2+x^4} = \frac{\pi}{4p}$ (VIII, 194).

8) $\int \frac{x^{p+1}\,dx}{(q^2+2qx\,Cos\,\lambda+x^2)^2} = \frac{\pi}{2q^{p-2}\,Sin\,p\pi} \frac{p\,Sin\,\lambda\,.\,Cos\,p\lambda - Cos\,\lambda\,.\,Sin\,p\lambda}{Sin^3\lambda}$ V. T. 20, N. 3.

9) $\int \frac{x^{q-1}\,dx}{[(p+r-1)x^2+(2p+r)x+p]^q} = \frac{\Gamma(q-\frac{1}{2})}{[2p+r+2\sqrt{p(p+r-1)}]^{q-\frac{1}{2}}\Gamma(q)} \sqrt{\frac{\pi}{p+r-1}}$

Cayley, L. Sér. 2, T. 2, 47.

10) $\int \frac{dx}{x^6+px^4+qx^2+r} = \frac{a\pi}{a(a^2-p)\sqrt{r}-2r}$

11) $\int \frac{x^2\,dx}{x^6+px^4+qx^2+r} = \frac{\pi\sqrt{r}}{a(a^2-p)\sqrt{r}-2r}$

12) $\int \frac{x^4\,dx}{x^6+dx^4+qx^2+r} = \frac{1}{2}\pi\sqrt{r} \frac{a^2-p}{a(a^2-p)\sqrt{r}-2r}$

(10–12) où a est la plus grande racine de l'équation $(Z^2-p)^2-8Z\sqrt{r}-4q=0$ (VIII, 226).

13) $\int \frac{x^{p-1}\,dx}{1+x+x^2+\ldots+x^{a-1}} = \frac{\pi\,Sin\frac{\pi}{a}}{a\,Sin\frac{p\pi}{a}\,.\,Sin\left(\frac{p+1}{a}\pi\right)}$ $[p<a]$ (VIII, 320).

4) $\int \frac{x^{p-1}\,dx}{1-x+x^2-\ldots-x^{2a-1}} = \frac{\pi\,Sin\left(\frac{2p+1}{2a}\pi\right)}{2a\,Sin\frac{p\pi}{2a}\,.\,Sin\left(\frac{p+1}{2a}\pi\right)}$ $[p<2a]$ (VIII, 320).

15) $\int \frac{x^{p-1}\,dx}{1-x+x^2-\ldots+x^{2a}} = \frac{\pi \, Sin\left(\frac{2p+1}{2a+1}\,\frac{\pi}{2}\right) . Cos\left(\frac{1}{2}\,\frac{\pi}{2a+1}\right)}{(2a+1)\,Sin\left(\frac{p\pi}{2a+1}\right) . Sin\left(\frac{p+1}{2a+1}\,\pi\right)}$ $[p < 2a+1]$ (VIII, 320).

16) $\int \frac{1}{1+2x\,Cos\,\lambda+x^2}\,\frac{dx}{x^p} = \frac{\pi\,Sin\,p\lambda}{Sin\,p\pi \,.\, Sin\,\lambda}$ $\left[\begin{matrix} p^2 < 1, \\ \lambda^2 < \pi^2 \end{matrix}\right]$ (VIII, 474).

17) $\int \frac{1}{r^2+(x+q)^2}\,\frac{dx}{x^p} = \frac{\pi}{r\sqrt{q^2+r^2}^{\,p}}\,Cosec\,p\pi \,.\, Sin\left(p\,Arctg\,\frac{r}{q}\right)$ (VIII, 532*).

18) $\int \frac{x+q}{r^2+(x+q)^2}\,\frac{dx}{x^p} = \frac{\pi}{\sqrt{q^2+r^2}^{\,p}}\,Cosec\,p\pi \,.\, Cos\left(p\,Arctg\,\frac{r}{q}\right)$ (VIII, 532*).

19) $\int \frac{1}{\left[\left(gx+\frac{h}{x}\right)^2+q\right]^{p+1}}\,\frac{dx}{x^2} = \frac{\Gamma(p+\frac{1}{2})\sqrt{\pi}}{2hq^{p+\frac{1}{2}}\Gamma(p+1)}$ Liouville, L. Sér. 2, T. 1, 421.

F. Alg. irrat. fract. TABLE 21. Lim. 0 et ∞.

1) $\int \frac{x^{p-\frac{1}{2}}\,dx}{(1+x)^2} = \frac{1-2p}{2}\,\pi\,Sec\,p\pi$ V. T. 16, N. 7.

2) $\int \frac{x^a\,dx}{(p+qx)^{b+\frac{1}{2}}} = \frac{1^{a/1}}{(2b-1)^{a+1/-2}}\,\frac{2^{a+1}}{q^{a+1}\,p^{b-a-\frac{1}{2}}}$ $[a < b-\frac{1}{2}]$ (VIII, 237).

3) $\int \frac{dx}{\sqrt{1+x^4}} = F'\left(Sin\,\frac{\pi}{4}\right)$ (IV, 63).

4) $\int \frac{1-x}{\sqrt[4]{1-x^4}^{\,3}}\,dx = 0$ (IV, 63).

5) $\int \frac{dx}{1-x^4}\,\sqrt{1+x^4} = 0$ (VIII, 295).

6) $\int \frac{dx}{\sqrt{1+x^6}} = \frac{2}{3}\sqrt[4]{3} \,.\, F'\left(Sin\,\frac{\pi}{12}\right)$ (IV, 64).

7) $\int \frac{dx}{\sqrt{1+x^8}} = Sec\,\frac{\pi}{8} \,.\, \sqrt{\frac{1}{2}} \,.\, F'\left(Tg\,\frac{\pi}{8}\right)$ (IV, 64).

8) $\int \frac{dx}{\sqrt{1+x^{12}}} = \frac{1}{2\sqrt[4]{3}}\,Sec\,\frac{\pi}{12} \,.\, F'\left(Sin\,\frac{\pi}{4}\right) + Tang\,\frac{\pi}{12} \,.\, F'\left(\frac{\sqrt{2}-\sqrt[4]{3}}{1+\sqrt{3}}\right)$ (IV, 64).

9) $\int \frac{x^{p-1}\,dx}{\sqrt{1+x^q}} = 2^{\frac{2p}{q}}\,B(q-2p,\ p)$ $[q > 2p]$ (IV, 64).

10) $\int \frac{dx}{(1+x)^2\,x^{p+\frac{1}{2}}} = \frac{2p+1}{2}\,\pi\,Sec\,p\pi$ V. T. 16, N. 4.

11) $\int \left(\frac{x^{\frac{1}{2}p}-x^{-\frac{1}{2}p}}{x-1}\right)^2 dx = 2(1-p\pi\,Cot\,p\pi)$ $[p^2 < 1]$ (VIII, 324).

12) $\int \left[1-\frac{1+x^2}{\sqrt{1+x^4}}\right]\frac{dx}{x} = -l\,2$ V. T. 21, N. 27.

13) $\int \frac{dx}{(q^2+x^2)\sqrt{p^2+x^2}} = \frac{1}{q\sqrt{p^2-q^2}} Arctg\left(\frac{\sqrt{p^2-q^2}}{q}\right) \; [q<p], = \frac{1}{q\sqrt{q^2-p^2}} l \frac{q+\sqrt{q^2-p^2}}{p}$
$[q>p]$ (VIII, 200).

14) $\int \frac{dx}{(1+px^2)\sqrt[3]{1+9px^2}} = \frac{\pi}{4\sqrt{p}}$ (VIII, 294).

15) $\int \frac{\left(x-\frac{1}{x}\right)^{2q}(1+x^2)}{\left(x^2+\frac{1}{x^2}\right)^{p+\frac{1}{2}}} \frac{dx}{x^2} = 2^{q-p} Cos^2 q\pi \frac{\Gamma(q+\frac{1}{2})\Gamma(p-q)}{\Gamma(p+\frac{1}{2})}$ (VIII, 293).

16) $\int \frac{dx}{\sqrt{(1+p^2x)(1+q^2x)(1+r^2x)}} = \frac{2}{\sqrt{p^2-r^2}} F\left[Arccos\frac{r}{p}, \sqrt{\frac{p^2-q^2}{p^2-r^2}}\right]$ (IV, 65).

17) $\int \frac{dx}{\sqrt{(p^2+l^2x)(q^2+m^2x)(r^2+n^2x)}} = \frac{2}{m\sqrt{p^2n^2-r^2l^2}} F\left[Arccos\frac{rl}{pn}, \frac{n}{m}\sqrt{\frac{p^2m^2-q^2l^2}{p^2n^2-r^2l^2}}\right]$
(IV, 65).

18) $\int \frac{dx}{\sqrt{x(x+p^2)(x+q^2)(x+r^2)}} = \frac{2}{\sqrt{p^2-r^2}} F\left[Arccos\frac{r}{p}, \sqrt{\frac{p^2-q^2}{p^2-r^2}}\right]$ (IV, 65).

19) $\int \frac{x^{a+\frac{1}{2}}dx}{(p+qx+rx^2)^{a+1}} = \frac{1}{(q+2\sqrt{pr})^{a+\frac{1}{2}}} \frac{\Gamma(a+\frac{1}{2})}{\Gamma(a+1)}\sqrt{\frac{\pi}{r}}$
20) $\int \frac{x^{a-\frac{1}{2}}dx}{(p+qx+rx^2)^{a+1}} = \frac{1}{(q+2\sqrt{pr})^{a+\frac{1}{2}}} \frac{\Gamma(a+\frac{1}{2})}{\Gamma(a+1)}\sqrt{\frac{\pi}{r}}$
} Boole, Phil. Trans. 1857.

21) $\int \frac{x^{p-t}\,dx}{(q+rx+sx^2)^{p+\frac{1}{2}}} = \frac{1}{\Gamma(p+\frac{1}{2})}\left(\frac{s}{q}\right)^{\frac{1}{2}t}\sqrt{\frac{\pi}{s}}.\sum_0^\infty \frac{(t-n)^{2n/1}}{2^{n/1}(2\sqrt{qs})^n} \frac{\Gamma(p-n)}{(r+2\sqrt{qs})^{p-n}}$ (VIII, 434).

22) $\int \frac{x^{p+t}\,dx}{(q+rx+sx^2)^{p+\frac{1}{2}}} = \frac{1}{\Gamma(p+\frac{1}{2})}\left(\frac{q}{s}\right)^{\frac{1}{2}t}\sqrt{\frac{\pi}{s}}.\sum_0^\infty \frac{(t-n+1)^{2n/1}}{2^{n/1}(2\sqrt{qs})^n} \frac{\Gamma(p-n)}{(r+2\sqrt{qs})^{p-n}}$ (VIII, 434).

23) $\int \frac{dx}{\sqrt{3+3x^2+x^4}} = \frac{1}{\sqrt[4]{3}} F'\left(Sin\frac{\pi}{12}\right)$ (VIII, 303).

24) $\int \frac{1}{\sqrt{3+3x^2+x^4}} \frac{dx}{(1+x^2)^2} = \sqrt[4]{3}\,.\,E'\left(Sin\frac{\pi}{12}\right) - \frac{1+\sqrt{3}}{2\sqrt[4]{3}} F'\left(Sin\frac{\pi}{12}\right)$ (VIII, 303).

25) $\int \frac{dx}{\sqrt{(1+x^2)(1+x^2-p^2x^2)}} = F'(p)$ (VIII, 340).

26) $\int \frac{x^2\,dx}{\sqrt{(1+x^2)(1+x^2-p^2x^2)}} = \infty$ (VIII, 341).

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27) $\int \left[1 - \frac{qx^2+p}{\sqrt{q^2x^4+2(pq-2r^2)x^2+p^2}}\right]\frac{dx}{x} = l\frac{pq-r^2}{pq}$ (VIII, 296).

28) $\int \frac{p\sqrt{2}+\sqrt{x}}{x+p\sqrt{2x}+p^2}\,\frac{dx}{q^2-x^2} = \frac{\pi}{2\sqrt{q}\cdot(q+p\sqrt{2q}+p^2)}$ (IV, 66).

29) $\int \frac{q+\sqrt{2x}}{q^2+q\sqrt{2x}+x}\,\frac{dx}{1+r^2x^2} = \frac{\pi}{2r}\,\frac{1}{1+q\sqrt{r}}$ (IV, 66).

30) $\int \frac{q+\sqrt{2x}}{q^2+q\sqrt{2x}+x}\,\frac{dx\sqrt{x}}{1+r^2x^2} = \frac{\pi}{\sqrt{r}}\,\frac{\sqrt{2}}{1+q\sqrt{r}}$ (IV, 66).

31) $\int \frac{x^6}{\sqrt{1+(2-4p^2)x^2+x^4}}\,\frac{dx}{(1+x^2)^3} = \frac{3}{8p^2}\{E'(p)-F'(p)\}+\frac{1}{2}F'(p)$ $[p<1]$ (VIII, 433).

32) $\int \frac{x^6\,dx\sqrt{1+(2-4p^2)x^2+x^4}}{(1+x^2)^5} = \frac{2p^2+1}{8p^2}E'(p)-\frac{1-p^2}{8p^2}F'(p)$ $[p<1]$ (VIII, 433).

F. Alg. fract. TABLE 22. Lim. — ∞ et ∞.

1) $\int \frac{dx}{x\pm q} = 0$ (VIII, 232).

2) $\int \frac{x\,dx}{x^2+p^2} = 0$ (VIII, 199).

3) $\int \frac{(-xi)^{p-1}}{1+x^2}\,dx = \pi$ (IV, 66).

4) $\int \frac{(-xi)^{p-1}}{1-x^2}\,dx = \pi\, Cos\,\frac{1}{2}p\pi$ (IV, 66).

5) $\int \frac{dx}{(r+xi)^p(s-xi)^q} = 2\pi(r+s)^{1-p-q}\frac{\Gamma(p+q-1)}{\Gamma(p)\Gamma(q)}$ (VIII, 673).

6) $\int \frac{dx}{(r+xi)^p(s+xi)^q} = 0$ (VIII, 679).

7) $\int \frac{dx}{(r-xi)^p(s-xi)^q} = 0$ (VIII, 673).

$\left[\begin{matrix} r>0<p<1, \\ s>0<q<1 \end{matrix}\right]$.

8) $\int \left(\frac{1}{x-r-si}+\frac{1}{x-r+si}\right)dx = 0$ V. T. 22, N. 9.

9) $\int \left(\frac{p-qi}{x-r-si}+\frac{p+qi}{x-r+si}\right)dx = 2\pi q$ (IV, 67).

10) $\int [(r-xi)^{-a}\pm(r+xi)^{-a}][(s-xi)^{-b}\pm(s+xi)^{-b}]\,dx = \pm\frac{2\pi}{(r+s)^{a+b-1}}\,\frac{\Gamma(a+b-1)}{\Gamma(a)\Gamma(b)}$ (VIII, 679).

11) $\int \frac{1}{(r-qxi)^p}\,\frac{dx}{1+x^2} = \frac{\pi}{(q+r)^p}$ (VIII, 444).

12) $\int \frac{dx}{(x-q)^2+p^2} = \frac{1}{p}\pi$ (VIII, 200).

13) $\int \frac{x-q}{(x-q)^2+p^2}\,dx = 0$ (VIII, 200).

14) $\int \frac{p+qx}{r^2+2rx\,Cos\,\lambda+x^2}\,dx = \frac{\pi}{r\,Sin\,\lambda}(p-qr\,Cos\,\lambda)$ (IV, 68).

15) $\int \frac{x}{1+(p+qx)^2}\,\frac{dx}{1+x^2} = \frac{(1-q)^2+p^2}{(1+p^2-q^2)^2+4p^2q^2}\,p\pi$ (VIII, 355).

F. Alg. fract. TABLE 23. Lim. 1 et ∞.

1) $\int \frac{(x-1)^{1-p}\,dx}{x^3} = \frac{1-p}{2}\,p\pi\,Cosec\,p\pi$ V. T. 1, N. 4.

2) $\int \frac{dx}{x(x-1)^p} = \pi\,Cosec\,p\pi$ V. T. 3, N 5.

3) $\int \frac{dx}{x^2(x-1)^p} = \frac{1+p}{2}\,p\pi\,Cosec\,p\pi$ V. T. 3, N. 6.

4) $\int \frac{dx}{x^2-p^2} = \infty$ (VIII, 232*).

5) $\int \frac{dx}{(r-qx)(x-1)^p} = -\pi\,Cosec\,p\pi\,.\left(\frac{q}{q-r}\right)^p$ $[r<q]$ (VIII, 541*).

6) $\int \frac{1}{1+qx^2}\,\frac{dx}{x} = \frac{1}{2}\,l\,\frac{1+q}{q}$ (VIII, 367).

7) $\int (x-1)^{p-\frac{1}{2}}\frac{dx}{x} = \pi\,Sec\,p\pi$ V. T. 8, N. 12.

8) $\int (x-1)^{p-\frac{1}{2}}\frac{dx}{x^2} = \frac{1-2p}{2}\,\pi\,Sec\,p\pi$ V. T. 8, N. 11.

9) $\int \frac{\left(1+\frac{1}{x^2}\right)\left(x-\frac{1}{x}\right)^{2q}}{\left(x^2+\frac{1}{x^2}\right)^{p+\frac{1}{2}}}\,dx = 2^{q-p-1}\,\frac{\Gamma(q+\frac{1}{2})\,\Gamma(p-q)}{\Gamma(p+\frac{1}{2})}$ (VIII, 293).

10) $\int \frac{dx}{x(x-1)^{p-\frac{1}{2}}} = \pi\,Sec\,p\pi$ V. T. 8, N. 12.

11) $\int \frac{dx}{x^2(x-1)^{p-\frac{1}{2}}} = \frac{2p-1}{2}\,\pi\,Sec\,p\pi$ V. T. 8, N. 11.

F. Alg. fract. TABLE 24. Lim. diverses.

1) $\int_q^p \frac{dx}{\sqrt{(x^2-q^2)(p^2-x^2)}} = \frac{1}{p}\,F'\left\{\frac{1}{p}\sqrt{p^2-q^2}\right\}$ (VIII, 299).

2) $\int_q^p \frac{x\,dx}{\sqrt{(x^2-q^2)(p^2-x^2)}} = \frac{1}{2}\pi$ (VIII, 311).

3) $\int_q^p \frac{x^2\,dx}{\sqrt{(x^2-q^2)(p^2-x^2)}} = p\,E'\left\{\frac{1}{p}\sqrt{p^2-q^2}\right\}$ (VIII, 299).

4) $\int_q^p \frac{x^4\,dx}{\sqrt{(x^2-q^2)(p^2-x^2)}} = 2p\,\frac{p^2+q^2}{3}\,E'\left\{\frac{1}{p}\sqrt{p^2-q^2}\right\} - \frac{1}{3}pq^2\,F'\left\{\frac{1}{p}\sqrt{p^2-q^2}\right\}$ (VIII, 299).

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F. Alg. fract. — TABLE 24, suite. — Lim. diverses.

5) $\int_q^p \frac{dx}{x\sqrt{(x^2-q^2)(p^2-x^2)}} = \frac{\pi}{2pq}$ (VIII, 312).

6) $\int_q^p \frac{dx}{x^2\sqrt{(x^2-q^2)(p^2-x^2)}} = \frac{\pi}{4}\frac{p^2+q^2}{p^2q^2}$ (VIII, 312).

7) $\int_q^p \frac{(x-q)^{r-1}(p-x)^{s-1}}{(t+x)^{r+s}}dx = \frac{(p-q)^{r+s-1}}{(p+t)^r(q+t)^s}\frac{\Gamma(r)\Gamma(s)}{\Gamma(r+s)}$ Winckler, Sitz. Ber. Wien. B. 20, 97.

8) $\int_q^{\pm\infty} \frac{(x-q)^{p-1}dx}{r-x} = \pm\frac{(-1)^p\pi}{(r-q)^{1-p}} \mathit{Cosec}\, p\pi$ ($\pm$ selon que $q>p$ ou $q<p$) Jürgensen, (VIII, 541).

9) $\int_1^{\mathit{Cosec}\lambda} \frac{dx}{\sqrt{(x-1)(1-x^2 \mathit{Sin}^2\lambda)}} = \sqrt{\frac{2}{\mathit{Sin}\lambda}}.\,\mathrm{F}'\left(\mathit{Sin}\frac{\pi-2\lambda}{4}\right)$ (VIII, 304).

10) $\int_{-\infty}^1 \frac{dx}{(r-qx)(x-1)^p} = -\pi\,\mathit{Cosec}\,p\pi.\left(\frac{q}{q-r}\right)^p$ $[r>q]$ (VIII, 541*).

F. Algébrique. — Intégr. Limites. — TABLE 25. — Lim. diverses.

1) $\int_0^1 \frac{1-x^k}{1-x}dx = \mathrm{A}+lk$ (VIII, 381).

2) $\int_0^1 \frac{x^{pk}-x^{qk}}{1-x}dx = l\frac{q}{p}$ (VIII, 381).

3) $\int_0^1 \left[\frac{kx^{k-1}}{1-x^k}-\frac{x^k}{1-x}\right]dx = \mathrm{A}$ (IV, 36).

4) $\int_0^1 \left[\frac{k}{1-x}-\frac{\sqrt[k]{x}}{1-\sqrt[k]{x}}\right]dx = k\mathrm{A}$ (IV, 49).

[Lim. $k=\infty$].

5) $\int_0^a \frac{kx^p dx}{k^2+(x+r)^2} = 0$ (VIII, 384).

6) $\int_0^a \frac{kx^p dx}{k^2+(x-r)^2} = \pi r^p$ $[a>r]$, $=0$ $[a<r]$ (VIII, 384).

7) $\int_0^a \frac{kdx}{k^2+x^2} = \frac{1}{2}\pi$ (VIII, 382).

8) $\int_{-a}^b \frac{kdx}{k^2+x^2} = \pi$ $[a>0]$, $=0$ $[a<0]$ (VIII, 382).

[Lim. $k=0$].

F. Expon. Forme entière. — TABLE 26. — Lim. 0 et ∞.

1) $\int e^{-(p+qi)x}dx = \frac{p-qi}{p^2+q^2}$ (VIII, 201).

2) $\int e^{-p^2x^2}dx = \frac{1}{2p}\sqrt{\pi}$ (VIII, 263).

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3) $\int e^{px^2 i}\,dx = \frac{1}{2} e^{\frac{1}{4}\pi i} \sqrt{\frac{\pi}{p}}$ V. T. 26, N. 10.

4) $\int e^{-x^p}\,dx = \frac{1}{p} \Gamma\left(\frac{1}{p}\right)$ V. T. 26, N. 11.

5) $\int e^{-pe^{bx}}\,dx = \frac{1}{b} Ei(-p)$ (IV, 76).

6) $\int e^{-x^{\frac{2}{1+2a}}}\,dx = \frac{1^{a+1/2}}{2^{a+1}} \sqrt{\pi}$ V. T. 26, N. 4.

7) $\int e^{-\frac{1}{x^2}}\,dx = \sqrt{\pi}$ V. T. 26, N. 10.

8) $\int e^{-\frac{1}{x^q}}\,dx = \frac{\sqrt[q]{q}}{(q-1)^{\frac{1}{q}/q}}$ (IV, 76).

9) $\int e^{-(px^2+qx)}\,dx = \frac{1}{2} e^{\frac{q^2}{4p}} \sqrt{\frac{\pi}{p}} - \frac{q}{2p} \sum_0^\infty \frac{1}{2n+1} \frac{1}{1^{n/2}} \left(\frac{q^2}{2p}\right)^n$ Raabe, Cr. B. 48, 178.

10) $\int e^{-p^2x^2-\frac{q^2}{x^2}}\,dx = \frac{1}{2p} e^{-2pq} \sqrt{\pi}$ (VIII, 427).

11) $\int e^{-\left(x-\frac{p}{x}\right)^{2b}}\,dx = \frac{1}{2b} \Gamma\left(\frac{1}{2b}\right)$ (IV, 77).

12) $\int e^{\left(\frac{x^2}{p^2}+\frac{q^2}{x^2}\right)ri}\,dx = \frac{1}{2} p e^{\frac{2qri}{p}+\frac{\pi i}{4}} \sqrt{\frac{\pi}{r}}$ (IV, 77).

13) $\int (e^{-x}-1)^q e^{-px}\,dx = \frac{\Gamma(q+1)\Gamma(p)}{\Gamma(p+q+1)}$ (IV, 77).

14) $\int (e^{2px}+e^{-2px}) e^{-q^2x^2}\,dx = \frac{1}{q} e^{\frac{p^2}{q^2}} \sqrt{\pi}$ (VIII, 570).

15) $\int (e^{p\sqrt{x}}-e^{-p\sqrt{x}}) e^{-r^2x}\,dx = \frac{p}{r^3} e^{\frac{p^2}{4r^2}} \sqrt{\pi}$ (VIII, 570).

F. Expon. Forme fractionnaire. **TABLE 27.** Lim. 0 et ∞.

1) $\int \frac{dx}{1+e^{px}} = \frac{1}{p} l2$ (IV, 78).

2) $\int \frac{dx}{e^{px}+e^{-px}} = \frac{\pi}{4p}$ (VIII, 297).

3) $\int \frac{e^{px}-e^{-px}}{1+e^{qx}}\,dx = \frac{\pi}{q} Cosec\frac{p\pi}{q} - \frac{1}{p}$ (VIII, 557*).

4) $\int \frac{e^{px}+e^{-px}}{e^{qx}+e^{-qx}}\,dx = \frac{\pi}{2q} Sec\frac{p\pi}{2q}$ $[q>p]$ (VIII, 488*).

5) $\int \frac{(e^{px}+e^{-px})(e^{qx}+e^{-qx})}{e^{rx}+e^{-rx}}\,dx = \frac{2\pi}{r} \frac{Cos\frac{p\pi}{2r} \cdot Cos\frac{q\pi}{2r}}{Cos\frac{p\pi}{r}+Cos\frac{q\pi}{r}}$ (VIII, 533*). $[p<r>q]$.

6) $\int \frac{(e^{px}-e^{-px})(e^{qx}-e^{-qx})}{e^{rx}+e^{-rx}}\,dx = \frac{2\pi}{r} \frac{Sin\frac{p\pi}{2r} \cdot Sin\frac{q\pi}{2r}}{Cos\frac{p\pi}{r}+Cos\frac{q\pi}{r}}$ (VIII, 533*). $[p<r>q]$.

7) $\int \frac{e^{-qx}\,dx}{1-pe^{-rx}} = \sum_0^\infty \frac{p^n}{q+nr}$ Poisson, P. 20, 222.

8) $\int \frac{e^{-qx}-e^{-px}}{1-e^{-x}}\,dx = Z'(p)-Z'(q)$ V. T. 4, N. 5.

9) $\int \frac{e^{px}-e^{-px}}{e^{qx}-1}\,dx = \frac{1}{p}-\frac{\pi}{q}\,Cot\frac{p\pi}{q}$ (VIII, 557*).

10) $\int \frac{e^{px}-e^{-px}}{e^{qx}-e^{-qx}}\,dx = \frac{\pi}{2q}\,Tang\frac{p\pi}{2q}$ $[q>p]$ (VIII, 488*).

11) $\int \frac{(e^{px}-e^{-px})(e^{qx}+e^{-qx})}{e^{rx}-e^{-rx}}\,dx = \frac{\pi}{r}\;\frac{Sin\frac{p\pi}{r}}{Cos\frac{p\pi}{r}+Cos\frac{q\pi}{r}}$ $[p<r]$ (VIII, 533*).

12) $\int \left[\frac{qe^{-re^{qx}}}{1-e^{-qx}}-\frac{pe^{-re^{px}}}{1-e^{-px}}\right]dx = e^{-r}\,l\frac{p}{q}$ Winckler, Sitz. Ber. Wien. B. 21, 389.

13) $\int \frac{dx}{e^{x^2}+e^{-x^2}} = \frac{1}{2}\sum_0^\infty (-1)^n\sqrt{\frac{\pi}{2n+1}}$ (VIII, 487).

14) $\int \frac{e^{px}\,dx}{(e^{2px}+1)^2} = \frac{\pi-2}{8p}$ V. T. 27, N. 2.

15) $\int \frac{e^{2px}}{(e^{px}+1)^2}\,dx = \frac{1}{2p}(1-2\,l\,2)$ V. T. 27, N. 1.

16) $\int \frac{(e^{px}-e^{-px})(e^{qx}-e^{-qx})}{(e^{qx}+e^{-qx})^2}\,dx = \frac{p\pi}{2q^2}\,Sec\frac{p\pi}{2q}$ $[q>p]$ V. T. 27, N. 4.

17) $\int \frac{dx}{(e^{px}+e^{-px})^q} = \frac{\sqrt{\pi}}{2^{2q+1}p}\;\frac{\Gamma(q)}{\Gamma(q+\frac{1}{2})}$ (VIII, 422*).

18) $\int \frac{e^{2px}+e^{-2px}}{(e^x+e^{-x})^{2q}}\,dx = \frac{\Gamma(q+p)\Gamma(q-p)}{2\Gamma(2q)}$ V. T. 4, N. 17.

19) $\int \frac{e^{(q-1)px}\,dx}{(e^{px}+e^{-px})^{q+1}} = \frac{-1}{pq2^{q+1}}+\frac{\sqrt{\pi}}{2^{2q+2}p}\;\frac{\Gamma(q)}{\Gamma(q+\frac{1}{2})}$ V. T. 27, N. 17.

20) $\int \frac{dx}{(e^{p\sqrt{x}}+e^{-p\sqrt{x}})^2} = \frac{2}{p^2}\,l\,2$. V. T. 27, N. 1.

21) $\int \frac{e^{p\sqrt{x}}-e^{-p\sqrt{x}}}{(e^{p\sqrt{x}}+e^{-p\sqrt{x}})^2}\,dx = \frac{\pi}{2p}$ V. T. 27, N. 2.

22) $\int \frac{dx}{e^{qx}+2\,Cos\lambda+e^{-qx}} = \frac{\lambda}{2q}\,Cosec\lambda$ V. T. 6, N. 3.

23) $\int \frac{e^{px}+e^{-px}}{e^{qx}+2\, Cos\,\lambda + e^{-qx}}\, dx = \frac{\pi}{q}\, Cosec\,\lambda \,.\, Cosec\frac{p\pi}{q}\,.\, Sin\frac{p\lambda}{q}$ V. T. 6, N. 19.

24) $\int \frac{e^{px}-2\, Cos\,\lambda + e^{-px}}{e^{qx}-2\, Cos\,\mu + e^{-qx}}\, dx = \frac{\pi}{q}\, \frac{Sin\left(p\frac{\pi-\mu}{q}\right)}{Sin\,\mu\,.\,Sin\frac{p\pi}{q}} - \frac{\pi-\mu}{q\, Sin\,\mu}\, Cos\,\lambda$ V. T. 6, N. 20.

25) $\int \frac{dx}{e^{x^2}+1+e^{-x^2}} = \frac{1}{2}\, Cosec\frac{\pi}{3}\,.\,\sum_1^\infty (-1)^{n-1}\, Sin\frac{n\pi}{3}\,.\,\sqrt{\frac{\pi}{n}}$ (VIII, 487).

26) $\int \frac{e^{qx}+Cos\,\lambda}{(e^{qx}+e^{-qx}+2\, Cos\,\lambda)^2}\, dx = \frac{1}{4q}\left[\lambda\, Cosec\,\lambda - \frac{1}{1+Cos\,\lambda}\right]$ V. T. 27, N. 22.

27) $\int \frac{(e^{px}-e^{-px})(e^{qx}-e^{-qx})}{(e^{qx}+e^{-qx}+2\, Cos\,\lambda)^2}\, dx = \frac{p\pi}{q^2}\, Cosec\,\lambda\,.\, Cosec\frac{p\pi}{q}\,.\, Sin\frac{p\lambda}{q}$. V. T. 27, N. 23.

F. Exponentielle. TABLE 28. Lim. — ∞ et ∞.

1) $\int e^{-px^2 \pm qx}\, dx = e^{\frac{q^2}{4p}}\sqrt{\frac{\pi}{p}}$ (VIII, 429*). 2) $\int e^{(px^2+qx)i}\, dx = (1+i)\, e^{-\frac{q^2 i}{4p}}\sqrt{\frac{\pi}{2p}}$ (IV, 81).

3) $\int e^{-(px^2+qx)i}\, dx = (1-i)\, e^{\frac{q^2 i}{4p}}\sqrt{\frac{\pi}{2p}}$ (IV, 81).

4) $\int e^{\left(px^2+\frac{q}{x^2}\right)i}\, dx = (1+i)\, e^{2i\sqrt{pq}}\sqrt{\frac{\pi}{2p}}$ (IV, 82).

5) $\int e^{-\left(px^2+\frac{q}{x^2}\right)i}\, dx = (1-i)\, e^{-2i\sqrt{pq}}\sqrt{\frac{\pi}{2p}}$ (IV, 82).

6) $\int e^{-\left(x-\frac{q}{x}\right)^{2a}}\, dx = \frac{1}{a}\,\Gamma\left(\frac{1}{2a}\right)$ Boole, C. & D. Math. Journ. V. 4, 14.

7) $\int \frac{e^{-px}\, dx}{1+e^{-qx}} = \frac{\pi}{q}\, Cosec\frac{p\pi}{q}$ V. T. 17, N. 10.

8) $\int \frac{(1+e^{-x})^q - 1}{(1+e^{-x})^{p+q}}\, dx = Z'(p+q) - Z'(p)$ V. T. 18, N. 5.

9) $\int \left[e^{px} - \frac{1}{(1+e^{-x})^p}\right] e^{-(q+1)x}\, dx = \frac{q}{q-p+1}\, \frac{\Gamma(q)\,\Gamma(p-q)}{\Gamma(p)}$ V. T. 18, N. 10.

10) $\int \left[\frac{1}{1+e^{-x}} - \frac{1}{(1+e^{-x})^p}\right] dx = A + Z'(p)$ V. T. 18, N. 11.

11) $\int \left[\frac{1}{(1+e^{-x})^q} - \frac{1}{1+e^{-x})^p}\right] dx = Z'(p) - Z'(q)$ V. T. 18, N. 12.

1) $\int_0^1 x^{-px}\,dx = \sum_1^\infty \frac{p^{n-1}}{n^n}$ (IV, 83).

2) $\int_0^1 e^{-px^2}\,dx = \sqrt{\left[\frac{e^{-p}}{p}\sum_1^\infty \frac{p^n}{1^{n/1}}\sum_1^{n-1}\frac{(-1)^m}{2m+1}\right]}$ Raabe, Cr. B. 48, 137.

3) $\int_0^1 e^{q\sqrt{x}}\,dx = \frac{2}{q}\left(e^q - \frac{1}{q}e^q + \frac{1}{q}\right)$ V. T. 80, N. 1.

4) $\int_1^\infty e^{-qx-x^2}\,dx = \frac{e^{-q-1}}{q+2}\sum_0^\infty (-1)^n \frac{2^n 1^{n/2}}{(q+2)^{2n}}$ De Morgan, Int. Calc.

5) $\int_0^{2\pi} \frac{e^{-axi}\,dx}{1-pe^{xi}} = 2\pi p^a$ (VIII, 483).

6) $\int_0^{2\pi} \frac{pe^{xi}\,dx}{pe^{xi} \pm qe^{ri}} = 0\ [p<q], = 2\pi\ [p>q]$ (VIII, 359).

7) $\int_{-\pi}^{\pi} (pe^{xi})^a\,dx = 0$ V. T. 29, N. 8.

8) $\int_{-\pi}^{\pi} (q+pe^{xi})^a\,dx = 2\pi q^a$ (IV, 84).

9) $\int_{-\pi}^{\pi} (pe^{xi})^q\,dx = \frac{2}{q}p^q \operatorname{Sin} q\pi$ (IV, 84).

10) $\int_{-\pi}^{\pi} e^{-axi}e^{pe^{xi}}\,dx = \frac{2\pi}{1^{a/1}}p^a$ (IV, 84).

11) $\int_{-\pi}^{\pi} \frac{dx}{(qe^{xi})^a} = 0$ V. T. 29, N. 12.

12) $\int_{-\pi}^{\pi} \frac{dx}{(qe^{ri}+pe^{xi})^a} = \frac{p\pi}{(qe^{ri})^a}\ [p<q], = 0\ [p>q]$ (VIII, 359).

13) $\int_{-\pi}^{\pi} \frac{(e^{xi})^{a+1}\,dx}{\sqrt{1-2e^{xi}\operatorname{Cos}\lambda + e^{2xi}}} = 0$ (IV, 84).

1) $\int l(q+px)\,dx = \frac{q+p}{p}\,l(q+p) - \frac{q}{p}\,lq - 1$ (VIII, 204).

2) $\int \left(l\frac{1}{x}\right)^p dx = 1^{p/1} = \Gamma(p+1)\ [-1<p<\infty]$ (VIII, 554).

3) $\int \left(l\frac{1}{x}\right)^{\frac{2a-1}{2}} dx = \frac{1^{a/1}}{2^a}\sqrt{\pi}$ V. T. 81, N. 6.

4) $\int llx\,dx = -A$ V. T. 353, N. 1.

5) $\int l(p+lx)\,dx = lp - e^{-p}\,Ei(p)$ V. T. 107, N. 22.

6) $\int l(p-lx)\,dx = lp - e^{p}\,Ei(-p)$ V. T. 107, N. 23.

7) $\int lx \,.\, l(1-x)\,dx = 2 - \frac{1}{6}\pi^2$ V. T. 30, N. 2 et T. 108, N. 6.

8) $\int lx \,.\, l(1+x)\,dx = 2 - \frac{1}{12}\pi^2 - 2\,l2$ Winckler, Sitz. Ber. Wien. B. 43, 315.

9) $\int lx \,.\, l(1-x^2)\,dx = 4 - \frac{1}{4}\pi^2 - 2\,l2$ V. T. 30, N. 7 et 8.

10) $\int \left(l\frac{1}{x}\right)^{p-1} l\,l\frac{1}{x}\,dx = Z'(p) \,.\, \Gamma(p)$ (VIII, 554).

F. Logar. Forme rat. fract. TABLE 31. Lim. 0 et 1.

1) $\int \frac{dx}{\left(l\frac{1}{x}\right)^p} = \frac{\pi}{\Gamma(p)}\, Cosec\, p\pi$ V. T. 30, N. 2.

2) $\int \frac{dx}{l\,lx} = 0$ (IV, 85).

3) $\int l\frac{1-px}{1-p}\,\frac{dx}{lx} = -\sum_1^\infty \frac{p^n}{n}\, l(1+n)$ $[p<1]$ (VIII, 278).

4) $\int \frac{dx}{q+lx} = e^{-q}\, Ei(q)$ V. T. 91, N. 4.

5) $\int \frac{dx}{q-lx} = -e^{q}\, Ei(-q)$ V. T. 91, N. 1.

6) $\int \frac{dx}{q^2+(lx)^2} = \frac{1}{q}\left[Ci(q) \,.\, Sin\,q - Si(q) \,.\, Cos\,q + \frac{1}{2}\pi\, Cos\,q\right]$ V. T. 91, N. 7.

7) $\int \frac{lx\,dx}{q^2+(lx)^2} = Ci(q) \,.\, Cos\,q + Si(q) \,.\, Sin\,q - \frac{1}{2}\pi\, Sin\,q$ V. T. 91, N. 8.

8) $\int \frac{dx}{q^2-(lx)^2} = \frac{1}{2q}\left[e^{-q}\, Ei(q) - e^{q}\, Ei(-q)\right]$ V. T. 31, N. 4, 5.

9) $\int \frac{lx\,dx}{q^2-(lx)^2} = -\frac{1}{2}\left[e^{-q}\, Ei(q) + e^{q}\, Ei(-q)\right]$ V. T. 31, N. 4, 5.

10) $\int \frac{dx}{q^4-(lx)^4} = -\frac{1}{4q^3}\left[e^{q}\, Ei(-q) - e^{-q}\, Ei(q) - 2\, Ci(q) \,.\, Sin\,q + 2\, Si(q) \,.\, Cos\,q - \pi\, Cos\,q\right]$ V. T. 91, N. 18.

11) $\int \frac{lx\,dx}{q^4-(lx)^4} = -\frac{1}{4q^2}\left[e^{q}\, Ei(-q) + e^{-q}\, Ei(q) - 2\, Ci(q) \,.\, Cos\,q - 2\, Si(q) \,.\, Sin\,q + \pi\, Sin\,q\right]$ V. T. 91, N. 19.

12) $\int \frac{(lx)^2\,dx}{q^4-(lx)^4} = -\frac{1}{4q}\left[e^{q}\, Ei(-q) - e^{-q}\, Ei(q) + 2\, Ci(q) \,.\, Sin\,q - 2\, Si(q) \,.\, Cos\,q + \pi\, Cos\,q\right]$ V. T. 91, N. 20.

13) $\int \frac{(lx)^3\,dx}{q^4-(lx)^4} = -\frac{1}{4}\left[e^{-q}\, Ei(q) + e^{q}\, Ei(-q) + 2\, Ci(q) \,.\, Cos\,q + 2\, Si(q) \,.\, Sin\,q - \pi\, Sin\,q\right]$ V. T. 91, N. 21.

14) $\int \frac{dx}{(q+lx)^2} = -\frac{1}{q} + e^{-q} Ei(q)$ V. T. 31, N. 4.

15) $\int \frac{lx\,dx}{(q+lx)^2} = 1 + (1-q) e^{-q} Ei(q)$ V. T. 125, N. 12.

16) $\int \frac{dx}{(q-lx)^2} = \frac{1}{q} + e^{q} Ei(-q)$ V. T. 31, N. 5.

17) $\int \frac{lx\,dx}{(q-lx)^2} = 1 + (q+1) e^{q} Ei(-q)$ V. T. 125, N. 14.

18) $\int \frac{dx}{\{q^2+(lx)^2\}^2} = \frac{1}{2q^3}[Ci(q).Sin\,q - Si(q).Cos\,q + \frac{1}{2}\pi\,Cos\,q] + \frac{1}{2q^2}[Ci(q).Cos\,q +$

$+ Si(q).Sin\,q - \frac{1}{2}\pi\,Sin\,q]$ V. T. 92, N. 6.

19) $\int \frac{lx\,dx}{\{q^2+(lx)^2\}^2} = \frac{1}{2q}[Ci(q).Sin\,q - Si(q).Cos\,q + \frac{1}{2}\pi\,Cos\,q] - \frac{1}{2q^2}$ V. T. 92, N. 7.

20) $\int \frac{dx}{\{q^2-(lx)^2\}^2} = \frac{1}{4q^3}[(q-1)e^{q} Ei(-q) + (1+q)e^{-q} Ei(q)]$ V. T. 92, N. 8.

21) $\int \frac{lx\,dx}{\{q^2-(lx)^2\}^2} = \frac{1}{4q^2}[-1 + q\{e^{q} Ei(-q) - e^{-q} Ei(q)\}]$ V. T. 92, N. 9.

22) $\int \frac{dx}{\{q+lx\}^a} = \frac{1}{1^{a-1/1}} e^{-q} Ei(q) - \frac{1}{1^{a-1/1}} \sum_1^{a-1} 1^{a-n-1/1} q^{n-a}$ V. T. 92, N. 5.

23) $\int \frac{dx}{\{q-lx\}^a} = \frac{(-1)^a}{1^{a-1/1}} e^{q} Ei(-q) + \frac{(-1)^{a-1}}{1^{a-1/1}} \sum_1^{a-1} 1^{a-n-1/1} (-q)^{n-a}$ V. T. 92, N. 2.

F. Logar. Forme irrat. TABLE 32. Lim. 0 et 1.

1) $\int dx \sqrt{l\frac{1}{x}} = \frac{1}{2}\sqrt{\pi}$ (VIII, 542).

2) $\int dx\, ll\left(\sqrt[q]{\frac{1}{x}}\right) = -A - lq$ V. T. 256, N. 2.

3) $\int \frac{dx}{\sqrt{l\frac{1}{x}}} = \sqrt{\pi}$ (VIII, 542).

4) $\int \frac{dx}{\sqrt{l\frac{1}{x}}} ll\frac{1}{x} = -(A + 2l2)\sqrt{\pi}$ V. T. 256, N. 8.

5) $\int \frac{dx}{\sqrt{l\left(\sqrt[q]{\frac{1}{x}}\right)}} ll\left(\sqrt[q]{\frac{1}{x}}\right) = -(A + lq + 2l2)\sqrt{\frac{\pi}{q}}$ V. T. 256, N. 8.

6) $\int l(1-\sqrt{x})\,dx = -\frac{3}{2}$ V. T. 106, N. 6.

7) $\int l(1+\sqrt[q]{x})\,dx = l2 + \sum_{1}^{\infty} \frac{(-1)^n}{q+n}$ V. T. 106, N. 4.

F. Logarithmique. TABLE 33. Lim. diverses.

1) $\int_0^\infty lx . l\frac{p^2+x^2}{q^2+x^2}\,dx = \pi(q-p) + \pi\, l\frac{p^p}{q^q}$ (VIII, 608).

2) $\int_0^\infty lx . l\left(1+\frac{q^2}{x^2}\right)dx = \pi q(lq-1)$ (VIII, 608).

3) $\int_0^\infty l(1+p^2x^2) . l\left(1+\frac{q^2}{x^2}\right)dx = 2\pi\left[\frac{1+pq}{p}\,l(1+pq)-q\right]$ (VIII, 608).

4) $\int_0^\infty l(p^2+x^2) . l\left(1+\frac{q^2}{x^2}\right)dx = 2\pi\left[(p+q)\,l(p+q)-p\,lp-q\right]$ (VIII, 608).

5) $\int_0^\infty l\left(1+\frac{p^2}{x^2}\right) . l\left(1+\frac{q^2}{x^2}\right)dx = 2\pi\left[(p+q)\,l(p+q)-p\,lp-q\,lq\right]$ (VIII, 608).

6) $\int_0^\infty \left\{l\left(1+\frac{p^2}{x^2}\right)\right\}^2 dx = 4p\pi\, l2$ (VIII, 608).

7) $\int_0^\infty l\left(p^2+\frac{1}{x^2}\right) . l\left(1+\frac{q^2}{x^2}\right)dx = 2\pi\left[\frac{1+pq}{p}\,l(1+pq)-q\,lq\right]$ (VIII, 608).

8) $\int_0^p \frac{dx}{lx} = li(p) = Ei(lp)$ (IV, 87).

9) $\int_e^\infty \frac{dx}{l\frac{1}{x}} = -\infty$ (IV, 87).

10) $\int_1^e \frac{dx\, lx}{(1+lx)^2} = \frac{1}{2}e - 1$ V. T. 80, N. 6.

F. Circ. Dir. rat. ent. TABLE 34. Lim. 0 et $\frac{\pi}{4}$.

1) $\int Tang^p x\,dx = \sum_0^\infty \frac{(-1)^n}{p+2n+1}$ (VIII, 577) $= \frac{1}{4}\left\{Z'\left(\frac{p+3}{4}\right) - Z'\left(\frac{p+1}{4}\right)\right\}$ V. T. 2, N. 7.

2) $\int Tang^{2a} x\,dx = (-1)^a\frac{\pi}{4} + \sum_0^{a-1} \frac{(-1)^n}{2a-2n-1}$ (VIII, 241).

3) $\int Tang^{2a+1} x\,dx = (-1)^a\frac{1}{2}\,l2 + \sum_0^{a-1} \frac{(-1)^n}{2a-2n}$ (VIII, 241).

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4) $\int Tang^p x . Sin^2 x\, dx = \frac{1+p}{8}\left[Z'\left(\frac{p+3}{4}\right) - Z'\left(\frac{p+1}{4}\right)\right] - \frac{1}{4}$ V. T. 34, N. 1, 5.

5) $\int Tang^p x . Cos^2 x\, dx = \frac{1-p}{8}\left[Z'\left(\frac{p+3}{4}\right) - Z'\left(\frac{p+1}{4}\right)\right] + \frac{1}{4}$ V. T. 3, N. 11.

6) $\int Tang^p x . Cos\, 2x\, dx = \frac{1}{2} - \frac{p}{4}\left[Z'\left(\frac{p+3}{4}\right) - Z'\left(\frac{p+1}{4}\right)\right]$ V. T. 34, N. 1, 5.

7) $\int Cos^{p-1} 2x . Tg\, x\, dx = \frac{1}{4}\left[Z'\left(\frac{p+1}{2}\right) - Z'\left(\frac{p}{2}\right)\right]$ V. T. 2, N. 1.

8) $\int [Sin^a 2x - 1]\, Tg\left(\frac{\pi}{4} + x\right) dx = -\frac{1}{2}\sum_1^a \frac{1}{n}$ V. T. 2, N. 2.

9) $\int [Sin^q 2x - Sin^p 2x]\, Tg\left(\frac{\pi}{4} + x\right) dx = \frac{1}{2}[Z'(p+1) - Z'(q+1)]$ $\left[\begin{matrix} p^2 \lesseqgtr 1, \\ q^2 < 1 \end{matrix}\right]$ V. T. 2, N. 4.

10) $\int [Sin^p 2x - Sin^{1-p} 2x]\, Tg\left(\frac{\pi}{4} + x\right) dx = \frac{1}{2}\pi\, Cot\, p\pi$ V. T. 4, N. 4.

F. Circ. Dir. rat. fract. à dén. mon. TABLE 35. Lim. 0 et $\frac{\pi}{4}$.

1) $\int \frac{Cos^q 2x}{Cos^{2(q+1)} x} dx = 2^{2q} \frac{\{\Gamma(q+1)\}^2}{\Gamma(2q+2)}$ V. T. 1, N. 1.

2) $\int \frac{Cos^q 2x . Sin^{2a-1} x\, dx}{Cos^{2a+2q+1} x} = \frac{1^{a-1/1}}{2(q+1)^{a/1}}$ V. T. 1, N. 11.

3) $\int \frac{Cos^q 2x . Sin^{2a} x\, dx}{Cos^{2a+2q+2} x} = \frac{2^{a/2}}{(2q+1)^{a+1/2}}$ V. T. 1, N. 12.

4) $\int \frac{Sin^{2p-1} x\, dx}{Cos^p 2x} = \frac{\Gamma(2p-1)\Gamma(1-p)}{2^{2p-1}\Gamma(p)}$ V. T. 3, N. 12.

5) $\int \frac{1 - Tang\, x}{Cos\, 2x} Sin^2 x\, dx = \frac{3}{4} l2 - \frac{\pi}{8}$ V. T. 2, N. 11.

6) $\int \frac{1 - Tang^3 x}{Cos\, 2x} Cos^2 x\, dx = \frac{3}{4} l2 + \frac{\pi}{8}$ V. T. 2, N. 10.

7) $\int [Cos^{p-1} 2x - Sec^p 2x]\, Cot\, x\, dx = \frac{1}{2}\pi\, Cot\, p\pi$ V. T. 4, N. 4.

8) $\int [Cos^{p-1} 2x + Sec^p 2x]\, Tg\, x\, dx = \frac{1}{2}\pi\, Cosec\, p\pi$ V. T. 4, N. 1.

9) $\int [Tang^p x + Cot^p x]\, dx = \frac{1}{2}\pi\, Sec \frac{1}{2} p\pi$ $[p^2 < 1]$ V. T. 4, N. 7.

10) $\int \frac{Tang^{p-1} x - Cot^{p-1} x}{Cos\, 2x}\, dx = \frac{1}{2}\pi\, Cot \frac{1}{2} p\pi$ V. T. 4, N. 4.

11) $\int \frac{Cos^a 2x - 1}{Tang\, x}\, dx = -\frac{1}{2}\sum_1^a \frac{1}{n}$ V. T. 2, N. 2.

12) $\int \frac{Cos^q 2x - Cos^p 2x}{Tang\, x}\, dx = \frac{1}{2}\{Z'(p+1) - Z'(q+1)\}$ V. T. 2, N. 4.

13) $\int \frac{1 - Sec^p 2x}{Tang\, x}\, dx = \frac{1}{2}\{A + Z'(1-p)\}$ $[p < 1]$ V. T. 4, N. 5.

14) $\int \frac{Cos^p 2x - Sec^p 2x}{Tang\, x}\, dx = -\frac{1}{2p} + \frac{\pi}{2} Cot\, p\pi$ V. T. 4, N. 3.

15) $\int [Tg^p x - Cot^p x]\, Tg\, x\, dx = \frac{1}{p} - \frac{\pi}{2} Cosec \frac{1}{2} p\pi$ V. T. 4, N. 8.

16) $\int (Tg^p x + Cot^p x)(Tg^q x + Cot^q x)\, dx = 2\pi \frac{Cos \frac{1}{2} p\pi \,.\, Cos \frac{1}{2} q\pi}{Cos\, p\pi + Cos\, q\pi}$ V. T. 4, N. 9.

17) $\int (Tg^p x - Cot^p x)(Tg^q x - Cot^q x)\, dx = 2\pi \frac{Sin \frac{1}{2} p\pi \,.\, Sin \frac{1}{2} q\pi}{Cos\, p\pi + Cos\, q\pi}$ V. T. 4, N. 10.

(16, 17) $\left[\begin{matrix} p < 1, \\ q < 1 \end{matrix}\right]$.

18) $\int (Sin^{p-1} 2x + Cosec^p 2x)\, Cot\left(\frac{\pi}{4} + x\right) dx = \frac{1}{2}\pi\, Cosec\, p\pi$ V. T. 4, N. 1.

19) $\int (Sin^p 2x - Cosec^p 2x)\, Cot\left(\frac{\pi}{4} + x\right) dx = \frac{1}{2p} - \frac{\pi}{2} Cosec\, p\pi$ V. T. 4, N. 2.

20) $\int \frac{Sin^p 2x - 1}{Sin^p 2x}\, Tg\left(\frac{\pi}{4} + x\right) dx = \frac{1}{2}\{A + Z'(1-p)\}$ $[p < 1]$ V. T. 4, N. 5.

21) $\int \frac{Sin^{2p} 2x - 1}{Sin^p 2x}\, Tg\left(\frac{\pi}{4} + x\right) dx = -\frac{1}{2p} + \frac{1}{2}\pi\, Cot\, p\pi$ V. T. 4, N. 3.

22) $\int (Cos^p 2x - Sec^p 2x)\; Tg\, x\, dx = \frac{1}{2p} - \frac{1}{2}\pi\, Cosec\, p\pi$ V. T. 4, N. 2.

23) $\int \frac{Tg^p x - Cot^p x}{Cos\, 2x}\, Tg\, x\, dx = -\frac{1}{p} + \frac{1}{2}\pi\, Cot \frac{1}{2} p\pi$ V. T. 4, N. 12.

24) $\int \frac{(Cos\, x - Sin\, x)^{1-p}\, Sin^p x}{Cos^3 x}\, dx = \frac{1-p}{2} p\pi\, Cosec\, p\pi$ V. T. 23, N. 1.

25) $\int \frac{(Tg^p x - Cot^p x)(Tg^q x + Cot^q x)}{Cos\, 2x}\, dx = \frac{-\pi\, Sin\, p\pi}{Cos\, p\pi + Cos\, q\pi}$ $\left[\begin{matrix} p < 1, \\ q < 1 \end{matrix}\right]$ V. T. 4, N. 13.

26) $\int \frac{Cos^p 2x - Cos^{1-p} 2x}{Tang\, x} \frac{dx}{Cos\, 2x} = \frac{1}{2}\pi\, Cot\, p\pi$ V. T. 4, N. 4.

27) $\int \frac{(Cos\, x - Sin\, x)^p}{Sin^p x\,.\, Sin\, 2x} dx = -\frac{1}{2}\pi\, Cosec\, p\pi$ V. T. 3, N. 5.

28) $\int Sin\,(p\, Tg\, x) \frac{dx}{Sin\, 2x} = \frac{1}{2} Si(p)$ V. T. 149, N. 5.

29) $\int Cos\,(p\, Cot\, x) \frac{dx}{Sin\, 2x} = -\frac{1}{2} Ci(p)$ V. T. 226, N. 1.

30) $\int \frac{Cos\,(q\, Tg\, x) - Cos\,(q\, Cot\, x)\, dx}{Cos\, 2x} = \frac{1}{2}\pi\, Sin\, q$ V. T. 149, N. 11.

31) $\int [Tang^{p-1} x + Cot^{p-1} x]\, Sin\, 2x\, dx = \frac{1}{2} \frac{p\pi}{e^{\frac{1}{2}p\pi} - e^{-\frac{1}{2}p\pi}}$ V. T. 3, N. 13.

F. Circ. Dir. rat. fract. à dén. polyn. TABLE 36. Lim. 0 et $\frac{\pi}{4}$.

1) $\int \frac{Tang\, x\, dx}{1 + Cos\,\lambda\,.\, Sin\, 2x} = -\frac{1}{2}\lambda\, Cot\,\lambda + l\left(2\, Cos\, \frac{1}{2}\lambda\right)$ V. T. 6, N. 4.

2) $\int \frac{Tang\, x\, dx}{1 - p\, Sin\, 2x} = \frac{1}{2} l\{2(1-p)\} + \frac{p}{\sqrt{1-p^2}} Arctg\left(\sqrt{\frac{1+p}{1-p}}\right)$ $[p^2 < 1]$, $= \frac{1}{2} l\{2(p-1)\} -$

$- \frac{p}{2\sqrt{p^2-1}} l\{p + \sqrt{p^2-1}\}$ $[p^2 > 1]$ V. T. 6, N. 2.

3) $\int \frac{Tang^p x\, dx}{1 + Sin\, x\,.\, Cos\, x} = \frac{1}{3}\left\{Z'\left(\frac{p+2}{3}\right) - Z'\left(\frac{p+1}{3}\right)\right\}$ V. T. 6, N. 7.

4) $\int \frac{Tang^p x\, dx}{1 - Sin\, x\,.\, Cos\, x} = \frac{1}{6}\left\{Z'\left(\frac{p+5}{6}\right) - Z'\left(\frac{p+2}{6}\right) + Z'\left(\frac{p+4}{6}\right) - Z'\left(\frac{p+1}{6}\right)\right\}$ V. T. 36, N. 5.

5) $\int \frac{Tang^c x\, dx}{1 + Cos\frac{a\pi}{b}\,.\, Sin\, 2x} = \frac{1}{2b} Cosec\frac{a\pi}{b}\,.\, \sum_0^{b-1} (-1)^{n-1} Sin\frac{na\pi}{b}\,.\left\{Z'\left(\frac{b+c+n}{2b}\right) - Z'\left(\frac{c+n}{2b}\right)\right\}$

$[a + b$ impair$]$, $= \frac{1}{b} Cosec\frac{a\pi}{b}\,.\, \sum_0^{\frac{1}{2}(b-1)} (-1)^{n-1} Sin\frac{na\pi}{b}\,.\left\{Z'\left(\frac{b+c-n}{b}\right) - Z'\left(\frac{c+n}{b}\right)\right\}$ $\left[\begin{matrix} a+b \\ \text{pair} \end{matrix}\right]$

V. T. 6, N. 7.

6) $\int \frac{Tg^p x + Cot^p x}{1 + Cos\,\lambda\,.\, Sin\, 2x} dx = \pi\, Cosec\,\lambda\,.\, Cosec\, p\pi\,.\, Sin\, p\lambda$ V. T. 6, N. 8.

7) $\int \frac{1 - Tg\, x}{1 - Cos\,\lambda\,.\, Sin\, 2x} dx = Cosec\,\lambda\,.\, \sum_1^{\infty} \frac{Sin\, n\lambda}{n(n+1)}$ V. T. 6, N. 5.

8) $\int \frac{Sin\lambda - Tang^a x . Sin\{(a+1)\lambda\} + Tang^{a+1} x . Sin a\lambda}{1 - Cos\lambda . Sin 2x} Tang x dx = \sum_1^a \frac{Sin n\lambda}{n+1}$ V. T. 6, N. 12.

9) $\int \frac{1 - Tang x . Cos\lambda - Tg^{a+1} x . Cos\{(a+1)\lambda\} + Tang^{a+2} x . Cos a\lambda}{1 - Cos\lambda . Sin 2x} dx = \sum_0^a \frac{Cos n\lambda}{n+1}$ V. T. 6, N. 11.

10) $\int \frac{Tang^p x dx}{1 - Sin^2 x . Cos^2 x} = \frac{1}{6}\left\{-Z'\left(\frac{p+1}{6}\right) - Z'\left(\frac{p+2}{6}\right) + Z'\left(\frac{p+4}{6}\right) + Z'\left(\frac{p+5}{6}\right) + 2Z'\left(\frac{p+2}{3}\right) - \right.$

$\left. - 2Z'\left(\frac{p+1}{3}\right)\right\}$ V. T. 36, N. 3, 4.

11) $\int \frac{Sin^2 x dx}{1 - 2r Cos 2x + r^2} = \frac{\pi}{16r} + \frac{1}{4r} \frac{1-r}{1+r} Arctg \frac{1+r}{1-r}$ (VIII, 539).

12) $\int \frac{Cos^2 x dx}{1 - 2r Cos 2x + r^2} = -\frac{\pi}{16r} - \frac{1}{4r} \frac{1+r}{1-r} Arctg \frac{1+r}{1-r}$ (VIII, 539).

F. Circ. Dir. rat. fract. à dén. composé. TABLE 37. Lim. 0 et $\frac{\pi}{4}$.

1) $\int \frac{Sin^{p-1} 2x dx}{(Cos x + Sin x)^{2p}} = \frac{1}{2^{p+1}} \frac{\Gamma(p)\sqrt{\pi}}{\Gamma(p+\frac{1}{2})}$ V. T. 3, N. 2.

2) $\int \frac{Tg^c x . Cos^2 x dx}{\left(1 + Sin 2x . Cos\frac{a\pi}{b}\right)^2} = \frac{1}{4b Sin^2 \frac{a\pi}{b}} \left\{\frac{1}{2} + \sum_1^{b-1} (-1)^{n-1} Sin\frac{na\pi}{b} . \left[(1-c)\left\{Z'\left(\frac{b+c+n}{2b}\right) - \right.\right.\right.$

$\left.\left.\left. - Z'\left(\frac{c+n}{2b}\right)\right\} - c Cos\frac{a\pi}{b} . \left\{Z'\left(\frac{b+c+n-1}{2b}\right) - Z'\left(\frac{c+n-1}{2b}\right)\right\}\right]\right\}$ $\left[\begin{matrix}a+b\\ \text{imp.}\end{matrix}\right]$

$= \frac{1}{2b Sin^2 \frac{a\pi}{b}} \left\{\frac{1}{2} + \sum_1^{\frac{1}{2}(b-1)} (-1)^{n-1} Sin\frac{na\pi}{b} . \left[(1-c)\left\{Z'\left(\frac{b+c-n}{b}\right) - \right.\right.\right.$

$\left.\left.\left. - Z'\left(\frac{c+n}{b}\right)\right\} - c Cos\frac{a\pi}{b} . \left\{Z'\left(\frac{b+c-n-1}{b}\right) - Z'\left(\frac{c+n-1}{b}\right)\right\}\right]\right\}$ $\left[\begin{matrix}a+b\\ \text{pair}\end{matrix}\right]$

V. T. 6, N. 17.

3) $\int \frac{Tg^{p-1} x + Cot^p x}{Sin x + Cos x} \frac{dx}{Cos x} = \pi Cosec p\pi$ V. T. 4, N. 1.

4) $\int \frac{Tg^p x - Cot^p x}{Sin x + Cos x} \frac{dx}{Cos x} = \frac{1}{p} - \pi Cosec p\pi$ V. T. 4, N. 2.

5) $\int \frac{Tg^q x - Tg^p x}{Cos x - Sin x} \frac{dx}{Cos x} = Z'(1+p) - Z'(1+q)$ V. T. 2, N. 4.

6) $\int \frac{Cot^q x - Cot^p x}{Cos x - Sin x} \frac{dx}{Cos x} = Z'(p) - Z'(q)$ V. T. 4, N. 5.

7) $\int \frac{Tg^{p-1} x - Cot^p x}{Cos x - Sin x} \frac{dx}{Cos x} = \pi \, Cot \, p\pi$ V. T. 4, N. 4.

8) $\int \frac{Tg^p x - Cot^p x}{Cos x - Sin x} \frac{dx}{Cos x} = \pi \, Cot \, p\pi - \frac{1}{p}$ V. T. 4, N. 3.

9) $\int \frac{Cot^p x - 1}{Cos x - Sin x} \frac{dx}{Sin x} = -A - Z'(1-p)$ V. T. 4, N. 5.

10) $\int \frac{Tg^q x - Tg^p x}{Cos x - Sin x} \frac{dx}{Sin x} = Z'(p) - Z'(q)$ V. T. 4, N. 5.

11) $\int \frac{Tg^p x - Tg^{1-p} x}{Cos x - Sin x} \frac{dx}{Sin x} = \pi \, Cot \, p\pi$ V. T. 4, N. 4.

12) $\int \frac{1}{Tg^p x + Cot^p x} \frac{dx}{Sin 2x} = \frac{\pi}{8p}$ V. T. 4, N. 14.

13) $\int \frac{Tg^q x + Cot^q x}{Tg^p x + Cot^p x} \frac{dx}{Sin 2x} = \frac{\pi}{4p} Sec \frac{q\pi}{2p}$ V. T. 4, N. 14.

14) $\int \frac{Tg^q x - Cot^q x}{Tg^p x - Cot^p x} \frac{dx}{Sin 2x} = \frac{\pi}{4p} Tang \frac{q\pi}{2p}$ V. T. 4, N. 15.

15) $\int \frac{Cos 2x}{1 + Sin 2x . Cos \lambda} \frac{dx}{Cos^2 x} = Cos \lambda . l \{2(1 + Cos \lambda)\} - 1 + \lambda Sin \lambda$ V. T. 6, N. 6.

16) $\int \frac{Sin^p x}{(Cos x - Sin x)^{p+1}} \frac{dx}{Cos x} = -\pi \, Cosec \, p\pi$ V. T. 3, N. 5.

17) $\int \frac{Sin^p x}{(Cos x - Sin x)^p} \frac{dx}{Cos^2 x} = p\pi \, Cosec \, p\pi$ V. T. 3, N. 4.

18) $\int \frac{Sin^p x}{(Cos x - Sin x)^{p-1}} \frac{dx}{Cos^3 x} = \frac{1-p}{2} p\pi \, Cosec \, p\pi$ V. T. 23, N. 1.

19) $\int \frac{dx}{(Tg^q x + Cot^q x)^{2p} Sin 2x} = \frac{\{\Gamma(p)\}^2}{8q\Gamma(2p)}$ V. T. 4, N. 16.

20) $\int \frac{Sin^p x}{(Cos x - Sin x)^{p+1}} \frac{dx}{Sin 2x} = \frac{1}{2} \pi \, Cosec \, p\pi$ V. T. 3, N. 5.

21) $\int \frac{Tg^{p-q} x + Cot^{p-q} x}{(Tg x + Cot x)^{p+q}} \frac{dx}{Sin 2x} = \frac{1}{4} \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}$ V. T. 4, N. 17.

22) $\int \frac{Tg^p x + Cot^p x}{Tg^q x + 2 Cos \lambda + Cot^q x} \frac{dx}{Sin 2x} = \frac{\pi}{2q} Cosec \lambda . Cosec \frac{p\pi}{q} . Sin \frac{p\lambda}{q}$ V. T. 6, N. 19.

23) $\int \frac{Tg^p x - 2 Cos \lambda + Cot^p x}{Tg^q x + 2 Cos \mu + Cot^q x} \frac{dx}{Sin 2x} = \frac{\pi}{2q} Cosec \mu . Cosec \frac{p\pi}{q} . Sin \frac{p\mu}{q} - \frac{\mu}{2q} Cosec \mu . Cos \lambda$ V. T. 6, N. 20.

1) $\int dx \sqrt{1 - Tg^4 x} = \sqrt{2} . \left[F'\left(Sin\frac{\pi}{4}\right) - E'\left(Sin\frac{\pi}{4}\right) \right]$ (VIII, 321).

2) $\int [\sqrt{Tg\, x} + \sqrt{Cot\, x}]\, dx = \frac{1}{2}\pi\sqrt{2}$ V. T. 10, N. 1.

3) $\int \frac{Cos^{a-\frac{1}{2}} 2x\, dx}{Cos^{2a+1} x} = \frac{1^{a/2}}{1^{a/1}} \; \frac{\pi}{2^{a+1}}$ V. T. 7, N. 1.

4) $\int \frac{Sin^{2a-1} x}{Cos^{2a+2} x}\, dx \sqrt{Cos\, 2x} = \frac{2^{a-1/2}}{3^{a/2}}$ V. T. 7, N. 2.

5) $\int \frac{Sin^{2a} x}{Cos^{2a+3} x}\, dx \sqrt{Cos\, 2x} = \frac{3^{a-1/2}}{4^{a/2}} \; \frac{\pi}{4}$ V. T. 7, N. 3.

6) $\int \frac{Sin^{2a-1} x}{Cos^{2a+2b} x}\, Cos^{b-\frac{1}{2}} 2x\, dx = \frac{2^{a-1/2}}{(2b+1)^{a/2}}$ V. T. 7, N. 5.

7) $\int \frac{Sin^{2a} x}{Cos^{2a+2b+1} x}\, Cos^{b-\frac{1}{2}} 2x\, dx = \frac{1^{a/2}\, 1^{b/2}}{1^{a+b/1}} \; \frac{\pi}{2^{a+b+1}}$ V. T. 7, N. 4.

8) $\int \frac{Sin^{2p} x\, dx}{Cos^{p+\frac{1}{2}} 2x\, .\, Cos\, x} = \frac{1}{2}\pi\, Sec\, p\pi$ V. T. 8, N. 12.

9) $\int \frac{dx \sqrt{Cos\, 2x}}{Cos^2 x} = \sqrt{2} . \left[F'\left(Sin\frac{\pi}{4}\right) - E'\left(Sin\frac{\pi}{4}\right) \right]$ (VIII, 321).

10) $\int \frac{Tg^2 x\, dx}{\sqrt{Cos\, 2x}} = \frac{1}{2}$ V. T. 8, N. 1.

11) $\int \frac{(Cot\, x - 1)^{p+\frac{1}{2}}\, dx}{Cos^2 x} = \frac{2p+1}{2}\pi\, Sec\, p\pi$ V. T. 8, N. 11.

12) $\int \frac{(Cot\, x - 1)^{p-\frac{1}{2}}\, dx}{Sin^2 x} = \pi\, Sec\, p\pi$ V. T. 8, N. 12.

13) $\int [Tg^{p-1} x + Tg^{q-1} x]\, Sec^{\frac{p+q}{2}} 2x\, .\, Cos^{p+q-2} x\, dx = \frac{1}{2} Cos\left\{\frac{q-p}{4}\pi\right\} . Sec\left(\frac{q+p}{4}\pi\right) \frac{\Gamma(\frac{1}{2}p)\,\Gamma(\frac{1}{2}q)}{\Gamma\left(\frac{1}{2}[p+q]\right)}$ V. T. 8, N. 25.

14) $\int [Tg^{p-1} x - Tg^{q-1} x]\, Sec^{\frac{p+q}{2}} 2x\, .\, Cos^{p+q-2} x\, dx = \frac{1}{2} Sin\left\{\frac{q-p}{4}\pi\right\} . Cosec\left(\frac{q+p}{4}\pi\right) \frac{\Gamma(\frac{1}{2}p)\,\Gamma(\frac{1}{2}q)}{\Gamma\left(\frac{1}{2}[p+q]\right)}$ V. T. 8, N. 26.

15) $\int \frac{Sin^{2a} x\, dx}{Cos^{2a+1} x\, .\, \sqrt{Cos\, 2x}} = \frac{3^{a-1/2}}{2^{a/2}} \; \frac{\pi}{2}$ V. T. 8, N. 13.

16) $\int \frac{Sin^{2a-1} x\, dx}{Cos^{2a} x\, .\, \sqrt{Cos\, 2x}} = \frac{2^{a-1/2}}{1^{a/2}}$ V. T. 8, N. 14.

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17) $\int \frac{Sin^{p-\frac{1}{2}} 2x\,dx}{Cos^p 2x \,.\, Cos x} = \frac{2}{2p-1} \frac{\Gamma(p+\frac{1}{2})\Gamma(1-p)}{\sqrt{\pi}} Sin\left\{\frac{2p-1}{4}\pi\right\}$ V. T. 8, N. 24.

18) $\int \frac{1}{\sqrt[4]{Sin^3 x \,.\, Cos x}} \frac{dx}{\sqrt{Cos 2x}} = \frac{3}{\sqrt[4]{3}} F'\left(Sin \frac{\pi}{12}\right)$ V. T. 10, N. 6.

19) $\int \frac{1}{\sqrt[4]{Sin x \,.\, Cos^3 x}} \frac{dx}{\sqrt{Cos 2x}} = \frac{1}{\sqrt[4]{3}} F'\left(Cos \frac{\pi}{12}\right)$ V. T. 10, N. 5.

20) $\int \frac{\sqrt[4]{Tg x}}{\sqrt{Cos 2x}} \frac{dx}{Cos x} = \frac{1-\sqrt{3}}{\sqrt[4]{3}} F'\left(Cos \frac{\pi}{12}\right) + 2\sqrt[4]{3} E'\left(Cos \frac{\pi}{12}\right)$ V. T. 8, N. 22.

21) $\int \frac{\sqrt[4]{Tg^3 x}}{\sqrt{Cos 2x}} \frac{dx}{Cos x} = 3\sqrt[4]{3} E'\left(Sin \frac{\pi}{12}\right) - 3 \frac{1+\sqrt{3}}{2\sqrt[4]{3}} F'\left(Sin \frac{\pi}{12}\right)$ V. T. 8, N. 23.

22) $\int (Cot x - 1)^{p-1} \frac{dx}{Sin 2x} = \frac{1}{2}\pi\, Cosec\, p\pi$ (VIII, 545).

23) $\int (Sec^{\frac{1}{2}} 2x - 1) \frac{dx}{Tg x} = l 2$ (IV, 96).

24) $\int (Cos x - Sin x)^{a-\frac{1}{2}} \frac{dx}{Cos^{a+1} x \,.\, \sqrt{Sin x}} = \pi \frac{1^{a/2}}{2^{a/2}}$ V. T. 10, N. 3.

25) $\int (Cos x - Sin x)^{a-\frac{1}{2}} \frac{Tg^b x\,dx}{Cos^{a+1} x \,.\, \sqrt{Sin x}} = \pi \frac{1^{a/2}\, 1^{b/2}}{2^{a+b/2}}$ V. T. 10, N. 4.

26) $\int \frac{dx}{Cos^2 x} \sqrt{\frac{Cos^2 x - p^2 Sin^2 x}{Cos 2x}} = E'(p)$ V. T. 8, N. 15.

27) $\int \frac{dx}{Cos^2 x} \sqrt{\frac{Cos^4 x - p^2 Sin^4 x}{Cos 2x}} = \frac{cF'(c)+bF'(b)}{(b+c)^2} + \frac{b-c}{(b+c)^2}\{E'(b) - E'(c)\}$ $\left[2c^2 = \frac{(1-\sqrt{p})^2}{1+p} \quad 2b^2 = \frac{(1+\sqrt{p})^2}{1+p}\right]$ V. T. 9, N. 12.

F. Circ. Dir. irrat. fract. à dén. polyn. et comp. TABLE 39. Lim. 0 et $\frac{\pi}{4}$.

1) $\int \frac{Tg^2 x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{1-p^2}\left\{\sqrt{\frac{2-p^2}{2}} - E\left(\frac{\pi}{4}, p\right)\right\}$ V. T. 14, N. 9.

2) $\int \frac{Tg^2 x\,dx}{\sqrt{1-p^2 Sin^2 2x}} = \sqrt{1-p^2} - E'(p) + \frac{1}{2} F'(p)$ (IV, 128).

3) $\int \frac{dx}{Cos x \,.\, \sqrt{Sin x \,.\, (Cos x + p Sin x)}} = \frac{2}{\sqrt{p}}\, l\{\sqrt{p} + \sqrt{1+p}\}$ (VIII, 545).

4) $\int \frac{dx}{Cos\, x \,.\, \sqrt{Sin\, x \,.\, (Cos\, x - p\, Sin\, x)}} = \frac{2}{\sqrt{p}} Arcsin(\sqrt{p})$ (VIII, 545).

5) $\int \frac{Sin^a x}{Cos^{a+1} x} \frac{dx}{\sqrt{Cos\, x \,.(Cos\, x - Sin\, x)}} = 2 \frac{2^{a/2}}{3^{a/2}}$ V. T. 8, N. 1.

6) $\int \frac{Sin^a x}{Cos^{a+1} x} \frac{dx}{\sqrt{Sin\, x \,.(Cos\, x - Sin\, x)}} = \pi \frac{1^{a/2}}{2^{a/2}}$ V. T. 10, N. 2.

7) $\int \frac{\sqrt{Cot\, x} - 1}{Cos\, x - Sin\, x} \frac{dx}{Cos\, x} = l4$ V. T. 38, N. 23.

8) $\int \frac{1}{q\, Cos\, x - p\, Sin\, x} \frac{dx}{\sqrt{Sin\, x \,.(Cos\, x - Sin\, x)}} = \frac{\pi}{\sqrt{q(q-p)}}$ $[p<q]$ V. T. 10, N. 9.

9) $\int \frac{dx}{Cos^2 x \,.\, \sqrt{1 - p^2 Sin^2 2x}} = \sqrt{1-p^2} + F'(p) - E'(p)$ V. T. 39, N. 2 et T. 57, N. 1.

10) $\int \frac{dx}{Cos\, x \,.\, \sqrt{Cos^2 x + p\, Sin^2 x}} = \frac{1}{\sqrt{p}} l \{ \sqrt{p} + \sqrt{1+p} \}$ V. T. 39, N. 3.

11) $\int \frac{Tg\, x}{\sqrt{p\, Cos^2 x + Sin^2 x}} \frac{dx}{\sqrt{Cos\, 2x}} = Arccot\, p$ V. T. 12, N. 6.

12) $\int \frac{1}{Tg^2 x + Cot^2 x} \frac{dx}{\sqrt{Cos\, 2x}} = \frac{1}{8}\pi$ V. T. 13, N. 7.

13) $\int \frac{Cot^2 x}{Tg^2 x + Cot^2 x} \frac{dx}{\sqrt{Cos\, 2x}} = \frac{1}{8}\pi + \frac{1}{4}\sqrt{2} \,.\, F'\left(Sin \frac{\pi}{4}\right)$ V. T. 13, N. 6.

14) $\int \frac{Sin^{p-\frac{1}{2}} x}{(Cos\, x - Sin\, x)^{p+\frac{1}{2}}} \frac{dx}{Cos\, x} = \pi\, Sec\, p\pi$ V. T. 8, N. 12.

15) $\int \frac{Sin^{p+\frac{1}{2}} x}{(Cos\, x - Sin\, x)^{p+\frac{1}{2}}} \frac{dx}{Cos^2 x} = \frac{2p+1}{2} \pi\, Sec\, p\pi$ V. T. 8, N. 11.

16) $\int \frac{1}{(Cot\, x - 1)^{p+\frac{1}{2}}} \frac{dx}{Sin\, 2x} = \frac{1}{2} \pi\, Sec\, p\pi$ V. T. 8, N. 12.

17) $\int \frac{Sin^{p-\frac{1}{2}} 2x}{(Cos\, x - Sin\, x)^{2p}} \frac{dx}{Cos\, x} = \frac{2^{\frac{1}{2}-p}}{1-2p} \frac{\Gamma(p+\frac{1}{2})\Gamma(1-p)}{\sqrt{\pi}}$ $[p<\frac{1}{2}]$ V. T. 8, N. 10.

18) $\int \frac{Sin^q x \,.\, Cos^{1-\frac{1}{2}q} 2x}{(Cos^2 x - p^2 Sin^2 x)^{\frac{1}{2}q-1}} \frac{dx}{Cos^4 x} = \frac{\Gamma\left(\frac{q+1}{2}\right)\Gamma\left(2-\frac{q}{2}\right)}{p^3 \sqrt{\pi(q-1)(q-3)(q-5)}} \left\{ \frac{1+(q-3)p+p^2}{(1+p)^{q-3}} - \frac{1-(q-3)p+p^2}{(1-p)^{q-3}} \right\}$
V. T. 7, N. 6.

19) $\int \frac{Sin^{\frac{1}{2}q} 2x\, dx}{\{(Cos\, x - Sin\, x)(Cos\, x - p^2 Sin\, x)\}^{\frac{q+1}{2}} Cos\, x} = 2^{\frac{1}{2}q-1} \frac{(1-p)^{-q} - (1+p)^{-q}}{pq\sqrt{\pi}} \Gamma\left(\frac{q+2}{2}\right)\Gamma\left(\frac{1-q}{2}\right)$
V. T. 12, N. 32.

1) $\int Sin^{2a} x\,dx = \frac{1^{a|2}}{2^{a|2}} \frac{\pi}{2}$ (VIII, 239).

2) $\int Sin^{2a+1} x\,dx = \frac{2^{a|2}}{3^{a|2}}$ (VIII, 239).

3) $\int Sin^{p-1} x\,dx = 2^{p-2} \frac{\{\Gamma(\frac{1}{2}p)\}^2}{\Gamma(p)}$ (VIII, 611*).

4) $\int Sin\,2ax \,.\, Sin\,px\,dx = (-1)^{a-1} \frac{2a}{4a^2-p^2} Sin \frac{1}{2}p\pi$ (VIII, 332).

5) $\int Sin\,2ax \,.\, Cos\,px\,dx = \frac{2a}{4a^2-p^2} \left\{1+(-1)^{a-1} Cos \frac{1}{2}p\pi\right\}$ (VIII, 332).

6) $\int Sin\,px \,.\, Cos\,2ax\,dx = \frac{p}{4a^2-p^2} \left\{-1+(-1)^a Cos \frac{1}{2}p\pi\right\}$ (VIII, 332).

7) $\int Sin\,px \,.\, Sin\,qx\,dx = \frac{1}{p^2-q^2} \left\{q\,Sin \frac{1}{2}p\pi \,.\, Cos \frac{1}{2}q\pi - p\,Cos \frac{1}{2}p\pi \,.\, Sin \frac{1}{2}q\pi\right\}$ (VIII, 331).

8) $\int Sin\,px \,.\, Cos\,qx\,dx = \frac{1}{p^2-q^2} \left\{p - p\,Cos \frac{1}{2}p\pi \,.\, Cos \frac{1}{2}q\pi - q\,Sin \frac{1}{2}p\pi \,.\, Sin \frac{1}{2}q\pi\right\}$ (VIII, 332).

9) $\int Sin^{q-1} x \,.\, Sin\,\{(q+1)x\}\,dx = \frac{1}{q} Sin \frac{1}{2}q\pi$ (VIII, 373).

10) $\int Sin^{q-1} x \,.\, Cos\,\{(q+1)x\}\,dx = \frac{1}{q} Cos \frac{1}{2}q\pi$ (VIII, 373).

11) $\int Sin^{2a} x \,.\, Sin\,\{(2b+1)x\}\,dx = \frac{1^{2a|1}}{[2^2-(2b+1)^2][4^2-(2b+1)^2]\ldots[(2a)^2-(2b+1)^2]} \frac{1}{2b+1}$ (VIII, 243).

12) $\int Sin^{2a+1} x \,.\, Sin\,\{(2b+1)x\}\,dx = \frac{(-1)^b \pi}{2^{2a+2}} \binom{2a+1}{a-b}$ $[a>b]$, $=0$ $[a<b]$ (VIII, 275, 244).

13) $\int Sin^{2a} x \,.\, Sin\,px\,dx = \frac{1}{p} \frac{1^{2a|1}}{[2^2-p^2][4^2-p^2]\ldots[(2a)^2-p^2]} \left\{1 - Cos \frac{1}{2}p\pi \,.\left(1 - \frac{p^2}{1.2} - \frac{p^2[2^2-p^2]}{1.2.3.4} - \ldots\right.\right.$

$\left.\left.\ldots - \frac{p^2[2^2-p^2]\ldots[(2a-2)^2-p^2]}{1^{2a|1}}\right)\right\}$ [Pour p entier pair, il faut que $p>2a$.] (VIII, 244).

14) $\int Sin^{2a+1} x \,.\, Sin\,px\,dx = p\,Cos \frac{1}{2}p\pi \frac{1^{2a+1|1}}{[1^2-p^2][3^2-p^2]\ldots[(2a+1)^2-p^2]} \left\{1 + \frac{1^2-p^2}{2.3} + \ldots\right.$

$\left.\ldots + \frac{[1^2-p^2]\ldots[(2a-1)^2-p^2]}{1^{2a+1|1}}\right\}$ [Pour p entier impair, il faut que $p>2a+1$.] (VIII, 244).

15) $\int Sin^p x \,.\, Sin\,\{(p+2a)x\}\,dx = \frac{p+2a}{Cos\,\{(a-1)\pi\}} Cos \frac{1}{2}p\pi \,.\, \sum_0^{a-1} (-1)^n 2^{2n} \frac{(p+a+1)^{n|1}(a-1)^{n|1}}{(p+1)^{2n|1}}$ (VIII, 373).

16) $\int Sin^{2a}x \,.\, Cos\,2bx\,dx = \frac{(-1)^b \pi}{2^{2a+1}} \binom{2a}{a-b}\ [a>b], = 0\ [a<b]$ (VIII, 275, 243).

17) $\int Sin^{2a+1}x \,.\, Cos\,2bx\,dx = \frac{1^{2a+1/1}}{[1^2-(2b)^2][3^2-(2b)^2]\ldots[(2a+1)^2-(2b)^2]}$ (VIII, 244).

18) $\int Sin^{2a}x \,.\, Cos\,px\,dx = \frac{1}{p} Sin \frac{1}{2}p\pi \frac{1^{2a/1}}{[2^2-p^2][4^2-p^2]\ldots[(2a)^2-p^2]} \left\{1 - \frac{p^2}{1.2} - \frac{p^2[2^2-p^2]}{1.2.3.4} - \ldots \right.$

$\left. \ldots - \frac{p^2[2^2-p^2]\ldots[(2a-2)^2-p^2]}{1^{2a/1}}\right\}$ $\left[\begin{array}{l}\text{Pour } p \text{ entier pair, il} \\ \text{faut que } p > 2a.\end{array}\right]$ (VIII, 244).

19) $\int Sin^{2a+1}x \,.\, Cos\,px\,dx = \frac{1^{2a+1/1}}{[1^2-p^2][3^2-p^2]\ldots[(2a+1)^2-p^2]} \left\{1 - p\, Sin \frac{1}{2}p\pi . \left(1 + \frac{1^2-p^2}{1.2.3} + \ldots \right.\right.$

$\left.\left. \ldots + \frac{[1^2-p^2]\ldots[(2a-1)^2-p^2]}{1^{2a+1/1}}\right)\right\}$ $\left[\begin{array}{l}\text{Pour } p \text{ entier impair, il} \\ \text{faut que } p > 2a+1.\end{array}\right]$ (VIII, 245).

20) $\int Sin^p x \,.\, Cos\{(p+2a)x\}\,dx = \frac{p+2a}{Cos\,a\pi} Sin \frac{1}{2}p\pi . \sum_0^{a-1} (-1)^n 2^{2n} \frac{(p+a+1)^{n/1}(a-1)^{n/1}}{(p+1)^{2n/1}}$

(VIII, 373).

F. Circ. Dir. rat. ent. à un fact. $Cos^a x$. TABLE 41. Lim. 0 et $\frac{\pi}{2}$.

1) $\int Cos^{2a}x\,dx = \frac{\pi}{2} \frac{1^{a/2}}{2^{a/2}}$ (VIII, 239).

2) $\int Cos^{2a+1}x\,dx = \frac{2^{a/2}}{3^{a/2}}$ (VIII, 239).

3) $\int Cos^p x\,dx = \frac{\pi}{2^{p+1}} \frac{\Gamma(p+1)}{\{\Gamma(\frac{1}{2}p+1)\}^2}$ (VIII, 611).

4) $\int Cos\,2ax \,.\, Cos\,px\,dx = (-1)^{a-1} \frac{p}{4a^2-p^2} Sin \frac{1}{2}p\pi$ (VIII, 332).

5) $\int Cos\,px \,.\, Cos\,qx\,dx = \frac{1}{p^2-q^2}\left(p\, Sin \frac{1}{2}p\pi . Cos \frac{1}{2}q\pi - q\, Cos \frac{1}{2}p\pi . Sin \frac{1}{2}q\pi\right)$ (VIII, 331).

6) $\int Cos^{q-1}x \,.\, Sin\{(q+1)x\}\,dx = \frac{1}{q}$ (VIII, 372).

7) $\int Cos^{q-1}x \,.\, Cos\{(q+1)x\}\,dx = 0$ (VIII, 371).

8) $\int Cos^q x \,.\, Cos\,qx\,dx = \frac{\pi}{2^{q+1}}$ (VIII, 621).

9) $\int Cos^a x \,.\, Sin\,ax\,dx = \frac{1}{2^{a+1}} \sum_1^a \frac{2^n}{n}$ (IV, 101).

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10) $\int Cos^{2a} x . Sin px dx = \frac{1}{p} \frac{1^{2a/1}}{[2^2-p^2][4^2-p^2]\dots[(2a)^2-p^2]} \left\{1 - Cos \frac{1}{2} p\pi - \frac{p^2}{1.2} - \dots \right.$

$\left. \dots - \frac{p^2[2^2-p^2]\dots[(2a-2)^2-p^2]}{1^{2a/1}}\right\}$ [Pour p entier pair, il faut que $p > 2a$.] (VIII, 245).

11) $\int Cos^{2a+1} x . Sin px dx = p \frac{1^{2a+1/1}}{[1^2-p^2][3^2-p^2]\dots[(2a+1)^2-p^2]} \left\{\frac{1}{p} Sin \frac{1}{2} p\pi - 1 - \frac{1^2-p^2}{1.2.3} - \dots \right.$

$\left. \dots - \frac{[1^2-p^2]\dots[(2a-1)^2-p^2]}{1^{2a+1/1}}\right\}$ [Pour p entier impair, il faut que $p > 2a+1$.] (VIII, 245).

12) $\int Cos^p x . Sin\{(p+2a)x\} dx = (p+2a) \sum_1^a (-1)^{n-1} 2^{2n-2} \frac{(p+a+1)^{n-1/1} (a+1)^{n-1/1}}{(p+1)^{2n/1}}$

(VIII, 372).

13) $\int Cos^{2a} x . Cos 2bx dx = \frac{\pi}{2^{2a+1}} \frac{1^{2a/1}}{1^{a+b/1} 1^{a-b/1}} = \frac{\pi}{2^{2a+1}} \binom{2a}{a-b}$ $[a > b]$ (VIII, 621, 275).

14) $\int Cos^{2a+1} x . Cos\{(2b+1)x\} dx = \frac{\pi}{2^{2a+2}} \binom{2a+1}{a-b}$ $[a > b]$ (VIII, 275).

15) $\int Cos^{2a} x . Cos px dx = \frac{1^{2a/1}}{[2^2-p^2][4^2-p^2]\dots[(2a)^2-p^2]} \frac{1}{p} Sin \frac{1}{2} p\pi$ [Pour p entier pair, il faut que $p > 2a$.]

(VIII, 243).

16) $\int Cos^{2a+1} x . Cos px dx = \frac{1^{2a+1/1}}{[1^2-p^2][3^2-p^2]\dots[(2a+1)^2-p^2]} Cos \frac{1}{2} p\pi$ [Pour p entier impair, il faut que $p > 2a+1$.]

(VIII, 244).

17) $\int Cos^p x . Cos\{(p+2a)x\} dx = 0$ (VIII, 279).

18) $\int Cos^p x . Cos\{(p-2a)x\} dx = \frac{\pi}{2^{p+1}} \frac{(p-a+1)^{a/1}}{1^{a/1}}$ $[p > a-1]$ (VIII, 621).

19) $\int Cos^p x . Cos\{(p+2q)x\} dx = \frac{\Gamma(p+1)\Gamma(q)}{2^{p+1}\Gamma(p+q+1)} Sin q\pi$ (VIII, 429).

20) $\int Cos^{p+2a} x . Cos px dx = \frac{p^{a/1}}{1^{a/1}} \frac{\pi}{2^{p+2a+1}} \sum_0^\infty \frac{(n+a)^{2n/-1}}{(p+a-1)^{n/-1} 1^{n/1}}$ (VIII, 306).

21) $\int Cos^p x . Cos qx dx = \frac{\pi}{2^{p+1}} \frac{\Gamma(p+1)}{\Gamma\left(\frac{p+q}{2}+1\right)\Gamma\left(\frac{p-q}{2}+1\right)}$ (VIII, 515).

1) $\int Tang^{2p-1} x\,dx = \frac{1}{2}\pi\, Cosec\, p\pi$ $[p<1]$ (VIII, 486).

2) $\int Sin^{2a}x \,.\, Cos^{2b}x\,dx = \frac{1^{a/2}\,1^{b/2}}{2^{a+b/2}}\,\frac{\pi}{2}$ (VIII, 240).

3) $\int Sin^{2a}x \,.\, Cos^{2b+1}x\,dx = \frac{1^{a/2}\,2^{b/2}}{3^{a+b/2}}$ (VIII, 241).

4) $\int Sin^{2a+1}x \,.\, Cos^{2b}x\,dx = \frac{2^{a/2}\,1^{b/2}}{3^{a+b/2}}$ (VIII, 240).

5) $\int Sin^{2a+1}x \,.\, Cos^{2b+1}x\,dx = \frac{1^{a/1}\,1^{b/1}}{2\,.\,1^{a+b+1/1}}$ (VIII, 241).

6) $\int Cos^{2q-2}x \,.\, Tang^{p-1}x\,dx = \frac{\Gamma(\frac{1}{2}p)\,\Gamma(q-\frac{1}{2}p)}{2\,\Gamma(q)}$ V. T. 17, N. 19.

7) $\int Sin\, 2ax \,.\, Tg^p x\,dx = (-1)^{a-1}\frac{\pi}{4\, Sin\frac{1}{2}p\pi}\binom{p}{a}\sum_0^a\binom{a}{n}\frac{p^{n/1}}{(p-a+1)^{n/1}}$

8) $\int Cos\, 2ax \,.\, Tg^p x\,dx = (-1)^{a}\frac{\pi}{4\, Cos\frac{1}{2}p\pi}\binom{p}{a}\sum_0^a\binom{a}{n}\frac{p^{n/1}}{(p-a+1)^{n/1}}$

9) $\int Cos^p x \,.\, Sin\, px \,.\, Sin\, 2ax\,dx = \frac{\pi}{2^{p+2}}\,\frac{\Gamma(p+1)}{1^{a/1}\,\Gamma(p-a+1)} =$ 10) $\int Cos^p x \,.\, Cos\, px \,.\, Cos\, 2ax\,dx$

11) $\int Cos^{p+q-2}x \,.\, Sin\, px \,.\, Sin\, qx\,dx = \frac{\pi}{2^{p+q}}\,\frac{\Gamma(p+q-1)}{\Gamma(p)\,\Gamma(q)} =$ 12) $\int Cos^{p+q-2}x \,.\, Cos\, px \,.\, Cos\, qx\,dx$

Sur 7) à 12) voyez Cauchy, Ann. Math. T. 17, 84.

13) $\int Cos^{a+p-1}x \,.\, Sin\, px \,.\, Sin\{(a+1)x\}\,dx = \frac{\pi}{2^{p+a+1}}\,\frac{p^{a/1}}{1^{a/1}} =$ 14) $\int Cos^{a+p-1}x \,.\, Cos\, px \,.\, Cos\{(a+1)x\}\,dx$ (VIII, 306).

15) $\int Cos^{a+p-1}x \,.\, Sin\, px \,.\, Cos\{(a+1)x\} \,.\, Sin\, x\,dx = \frac{\pi}{2^{p+a+1}}\,\frac{p^{a/1}}{1^{a/1}}$ (VIII, 307).

16) $\int Cos^{p+q}x \,.\, Sin\, px \,.\, Sin\, qx\,dx = \frac{\pi}{2^{p+q+2}}\sum_1^\infty\binom{p}{n}\binom{q}{n}$ (VIII, 632).

17) $\int Cos^{p+q}x \,.\, Cos\, px \,.\, Cos\, qx\,dx = \frac{\pi}{2^{p+q+2}}\left\{2+\sum_1^\infty\binom{p}{n}\binom{q}{n}\right\}$ (VIII, 632).

18) $\int Cos^a x \,.\, Sin\, px \,.\, Sin\, x\,dx = \frac{p\pi}{2^{a+2}}\,\frac{1^{a/1}}{\Gamma\left(\frac{a+p+3}{2}\right)\Gamma\left(\frac{a-p+3}{2}\right)}$ (IV, 105).

19) $\int Cos^a x \,.\, Sin\, a x \,.\, Sin\, 2 b x\, dx = \frac{\pi}{2^{a+2}} \binom{a}{b} =$ 20) $\int Cos^a x \,.\, Cos\, a x \,.\, Cos\, 2 b x\, dx$ (VIII, 275).

21) $\int Cos^{a-1} x \,.\, Cos\{(a+1)x\} \,.\, Cos\, 2 b x\, dx = \frac{\pi}{2^{a+1}} \frac{(a-b+1)^{b-1/1}}{1^{b-1/1}}$ (IV, 105).

22) $\int Cos^{p+2a} x \,.\, Sin\, p x \,.\, Tg\, x\, dx = \frac{\Gamma(a+p)}{1^{a/1}\Gamma(p)} \frac{\pi}{2^{p+2a+1}} \sum_0^\infty \binom{a}{n} \frac{a^{n/-1}}{(p+a-1)^{n/-1}}$ (VIII, 306*).

23) $\int Sin^{p-1} x \,.\, Cos^{q-1} x \,.\, Sin\{(p+q)x\}\, dx = \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)} Sin \frac{1}{2} p\pi$ (VIII, 430).

24) $\int Sin^{p-1} x \,.\, Cos^{q-1} x \,.\, Cos\{(p+q)x\}\, dx = \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)} Cos \frac{1}{2} p\pi$ (VIII, 430).

F. Circ. Dir. rat. ent. comp. à argument mon. TABLE 43. Lim. 0 et $\frac{\pi}{2}$.

1) $\int Sin(p\, Tg\, x)\, dx = \frac{1}{2}\{e^{-p} Ei(p) - e^{p} Ei(-p)\}$ V. T. 160, N. 3.

2) $\int Cos(p\, Tg\, x)\, dx = \frac{1}{2}\pi e^{-p}$ (VIII, 546).

3) $\int Sin^2(p\, Tg\, x)\, dx = \frac{1}{4}\pi(1-e^{-2p})$ V. T. 160, N. 10.

4) $\int Cos^2(p\, Tg\, x)\, dx = \frac{1}{4}\pi(1+e^{-2p})$ V. T. 160, N. 11.

5) $\int Sin(p\, Tg\, x) \,.\, Tg\, x\, dx = \frac{1}{2}\pi e^{-p}$ (VIII, 546).

6) $\int Cos(p\, Tg\, x) \,.\, Tg\, x\, dx = -\frac{1}{2}\{e^{-p} Ei(p) + e^{p} Ei(-p)\}$ V. T. 160, N. 6.

7) $\int Sin(p\, Tg\, x) \,.\, Sin\, 2x\, dx = \frac{1}{2} p\pi e^{-p}$ (VIII, 546).

8) $\int Cos(p\, Tg\, x) \,.\, Sin^2 x\, dx = \frac{1-p}{4}\pi e^{-p}$ (VIII, 546).

9) $\int Cos(p\, Tg\, x) \,.\, Cos^2 x\, dx = \frac{1+p}{4}\pi e^{-p}$ (VIII, 546).

10) $\int Cos(p\, Tg\, x) \,.\, Cos\, 2x\, dx = \frac{1}{2} p\pi e^{-p}$ V. T. 43, N. 8, 9.

11) $\int Sin(p\,Tg\,x) . Sin^2 x . Tg\,x\,dx = \frac{2-p}{4}\pi e^{-p}$ (VIII, 546).

12) $\int Cos^{q-1} x . Sin\{(q+1)x\} . Sin(p\,Tg\,x)\,dx = \frac{\pi}{2\,\Gamma(q+1)} p^q e^{-q} =$ 13) $\int Cos^{q-1} x . Cos\{(q+1)x\} .$
$. Cos(p\,Tg\,x)\,dx$ Sur 12) et 13) voyez Cauchy, Ann. Math. T. 17, 84.

14) $\int Sin(p\,Sin\,x) . Sin\,2\,x\,dx = \frac{2}{q^2}(Sin\,q - q\,Cos\,q) =$ 15) $\int Sin(p\,Cos\,x) . Sin\,2\,x\,dx$ V. T. 149, N. 1.

16) $\int Cos(p\,Cos\,x) . Cos\,2\,q\,x\,dx = \frac{1}{2q} Sin\,q\pi . \left\{1 + \sum_1^\infty \frac{(-1)^n}{[1^2-q^2][2^2-q^2]\dots[n^2-q^2]}\left(\frac{p}{2}\right)^{2n}\right\}$ (IV, 107).

17) $\int Sin(p\,Cos\,x) . Tg\,x\,dx = Si(p)$ V. T. 149, N. 5.

18) $\int Sin(p\,Cot\,x) . Tg\,x\,dx = \frac{\pi}{2}(1 - e^{-q})$ (VIII, 546*).

19) $\int Sin^2(p\,Cot\,x) . Tg^2 x\,dx = \frac{\pi}{4}(e^{-2p} + 2p - 1)$ V. T. 172, N. 13.

20) $\int [Cos(q\,Cot\,x) - Cos(p\,Cot\,x)]\,Tg^2 x\,dx = \frac{\pi}{2}(e^{-p} - e^{-q}) + \frac{p-q}{2}\pi$ V. T. 173, N. 20.

F. Circ. Dir. rat. ent. comp. à argum. polyn. TABLE 44. Lim. 0 et $\frac{\pi}{2}$.

1) $\int Cos(2x - 2\,Tg\,x)\,dx = \frac{2\pi}{e^2}$ V. T. 170, N. 12.

2) $\int Cos^{p-1} x . Cos\{q\,Tg\,x - (p+1)x\}\,dx = \frac{\pi}{\Gamma(p+1)} q^p e^{-q}$ V. T. 43, N. 12, 13.

3) $\int Cos^{p-1} x . Cos\{q\,Tg\,x + (p+1)x\}\,dx = 0$ V. T. 43, N. 12, 13.

4) $\int Cos^{p-1} x . Cos\{q\,Tg\,x + (p-1)x\}\,dx = \frac{\pi}{2^p} e^{-q}$ (IV, 108).

5) $\int Sin\left(\frac{1}{2}r\pi - p\,Tg\,x\right) . Tg^{r-1} dx = \frac{1}{2}\pi e^{-p} =$ 6) $\int Cos\left(\frac{1}{2}r\pi - p\,Tg\,x\right) . Tg^r x\,dx$ V. T. 160, N. 20, 21.

7) $\int Sin^{p-1} x . Cos^{q-1} x . Sin\{c\,Tg\,x + (p+q)x - \frac{1}{2}p\pi\}\,dx = 0$ (IV, 109).

1) $\int Cos^{a+p} x . Sin \{(a+p+1)x\} \frac{dx}{Sin\, x} = \frac{\pi}{2} \frac{p^{a/1}}{1^{a/1}}$ V. T. 45, N. 3, 4.

2) $\int Cos^{a+p} x . Sin \{(a-p+1)x\} \frac{dx}{Sin\, x} = \frac{\pi}{2 . 1^{a/1}} \left[\frac{1}{2^{p+a-1}} \sum_0^a \binom{a}{n} 2^{n/2} p^{a-n/1} - p^{a/1}\right]$ V. T. 45, N. 3, 4.

3) $\int Cos^{a+p} x . Sin\, p x . Cos \{(a+1)x\} \frac{dx}{Sin\, x} = \frac{\pi}{2 . 1^{a/1}} \left[p^{a/1} - \frac{1}{2^{p+a}} \sum_0^a \binom{a}{n} 2^{n/2} p^{a-n/1}\right]$ (VIII, 307).

4) $\int Cos^{a+p} x . Cos\, p x . Sin \{(a+1)x\} \frac{dx}{Sin\, x} = \frac{\pi}{2^{p+a+1}\, 1^{a/1}} \sum_0^a \binom{a}{n} 2^{n/2} p^{a-n/1}$ (VIII, 307).

5) $\int Sin\, p x . Cos^{p-1} x \frac{dx}{Sin\, x} = \frac{1}{2}\pi$ (VIII, 306). 6) $\int Cos\, p x . Cos^{p-1} x \frac{dx}{Sin\, x} = \infty$ (VIII, 618).

7) $\int Cos \left\{p\left(\frac{1}{2}\pi - x\right)\right\} \frac{dx}{Sin^2 x} = 2^{p-1}\pi =$ 8) $\int Cos\, p x \frac{dx}{Cos^2 x}$

9) $\int Sin\, 2ax . Sin\, p x \frac{dx}{Cos^p x} = (-1)^a 2^{p-2} \pi \frac{p^{a/1}}{1^{a/1}} =$ 10) $\int Cos\, 2ax . Cos\, p x \frac{dx}{Cos^p x}$

11) $\int Sin^{p+q-2} x . Sin\, q x \frac{dx}{Sin^p x} = \frac{\pi}{2\, Sin \frac{1}{2} p\pi} \cdot \frac{\Gamma(p+q-1)}{\Gamma(p)\Gamma(q)}$

12) $\int Cos^{p+q-2} x . Cos\, q x \frac{dx}{Sin^p x} = \frac{\pi}{2\, Cos \frac{1}{2} p\pi} \frac{\Gamma(p+q-1)}{\Gamma(p)\Gamma(q)}$

Sur 7) à 12) voyez Cauchy, Ann. Math. T. 17, 84.

13) $\int Sin^{2p-2} x \frac{dx}{Cos^{2p-1} x} = \frac{\Gamma(2p-1)\Gamma(1-p)}{2^{2p-1}\Gamma(p)} =$ 14) $\int Cos^{2p-2} x \frac{dx}{Sin^{2p-1} x}$ V. T. 3, N. 12.

15) $\int Sin \{(2-p)x\} \frac{dx}{Sin^p x} = \frac{1}{1-p} Cos \frac{1}{2} p\pi$ $[2 > p > 0]$ (VIII, 306).

16) $\int Cos \{(2-p)x\} \frac{dx}{Sin^p x} = \frac{1}{1-p} Sin \frac{1}{2} p\pi$ $[p^2 < 1]$ (VIII, 306).

17) $\int Sin\, q x . Cot\, x\, dx = \frac{1}{8}\pi q^2$ V. T. 305, N. 6.

18) $\int Cos^{a-1} x . Sin \{(a+1)x\} \frac{dx}{Tg\, x} = \frac{1}{2}\pi$ V. T. 45, N. 1.

19) $\int Cot^p x\, dx = \frac{1}{2}\pi\, Sec \frac{1}{2} p\pi$ $[p < 1]$ (VIII, 306).

20) $\int Sin\, 2x . Cot^p x\, dx = \frac{1}{2} p\pi\, Cosec \frac{1}{2} p\pi$ $[0 < p < 2]$ (VIII, 306).

21) $\int Cos\,2x\,.\,Cot^p x\,dx = \frac{1}{2}p\pi\,Sec\,\frac{1}{2}p\pi$ $[p^2 < 1]$ (VIII, 305).

22) $\int Sin^{2q-2}x\,.\,Cot^{p-1}x\,dx = \frac{\Gamma(\frac{1}{2}p)\Gamma(q-\frac{1}{2}p)}{2\Gamma(q)}$ V. T. 17, N. 19.

23) $\int Cos^{p-2}x\,.\,Sin\,px\,.\,Cot^q x\,dx = \frac{\Gamma(p+q-1)}{2\Gamma(p)\Gamma(q)}\pi\,Cosec\,\frac{1}{2}q\pi$ $[2 > q > 0]$ (VIII, 305).

24) $\int Cos^{p-2}x\,.\,Cos\,px\,.\,Cot^q x\,dx = \frac{\Gamma(p+q-1)}{2\Gamma(p)\Gamma(q)}\pi\,Sec\,\frac{1}{2}q\pi$ $[1 > q > 0]$ (VIII, 305).

25) $\int \frac{Sin^2 x\,dx}{Cos\,2x} = -\frac{1}{4}\pi$ (VIII, 531*).

26) $\int \frac{Cos^2 x\,dx}{Cos\,2x} = \frac{1}{4}\pi$ (VIII, 531*).

27) $\int \frac{Tg^{p-1}x\,dx}{Cos\,2x} = \frac{1}{2}\pi\,Cot\,\frac{1}{2}p\pi$ V. T. 17, N. 11.

28) $\int \frac{Cos^2 x\,dx}{Cos^2 2x} = 0$ V. T. 17, N. 17.

29) $\int \frac{dx}{Cos\,2x\,.\,Tg^{p-1}x} = -\frac{1}{2}\pi\,Cot\,\frac{1}{2}p\pi$ V. T. 17, N. 11.

F. Circ. Dir. rat. fract. à num. bin. et dén. mon. TABLE 46. Lim. 0 et $\frac{\pi}{2}$.

1) $\int (Sin^p x - Cosec^p x)\,\frac{dx}{Cos\,x} = -\frac{1}{2}\pi\,Tg\,\frac{1}{2}p\pi$ V. T. 4, N. 11.

2) $\int (Sin^p x - Sin^q x)\,\frac{dx}{Cos\,x} = \frac{1}{2}\left\{Z'\left(\frac{q+1}{2}\right) - Z'\left(\frac{p+1}{2}\right)\right\}$ V. T. 2, N. 9.

3) $\int (Cos^p x - Sec^p x)\,\frac{dx}{Sin\,x} = -\frac{1}{2}\pi\,Tg\,\frac{1}{2}p\pi$ V. T. 4, N. 11.

4) $\int (Sec\,x - 1)^p\,Tg\,x\,dx = -\pi\,Cosec\,p\pi$ V. T. 3, N. 5.

5) $\int (Sec\,x - 1)^{1-p}\,Sin\,2x\,dx = (1-p)p\pi\,Cosec\,p\pi$ V. T. 1, N. 3.

6) $\int (Cosec\,x - 1)^p\,\frac{dx}{Tg\,x} = -\pi\,Cosec\,p\pi$ V. T. 3, N. 5.

7) $\int (Sin^{p-1}x + Sin^{q-1}x)\,\frac{dx}{Cos^{p+q-1}x} = \frac{1}{2}\,Cos\left(\frac{q-p}{4}\pi\right).Sec\left(\frac{q+p}{4}\pi\right)\frac{\Gamma(\frac{1}{2}p)\Gamma(\frac{1}{2}q)}{\Gamma\left(\frac{p+q}{2}\right)}$ V. T. 8, N. 25.

8) $\int (Sin^{p-1}x - Sin^{q-1}x)\,\frac{dx}{Cos^{p+q-1}x} = \frac{1}{2}\,Sin\left(\frac{q-p}{4}\pi\right).Cosec\left(\frac{q+p}{4}\pi\right)\frac{\Gamma(\frac{1}{2}p)\Gamma(\frac{1}{2}q)}{\Gamma\left(\frac{p+q}{2}\right)}$ V. T. 8, N. 26.

1) $\int \frac{Sin\,x\,dx}{Sin\,x \pm q\,Cos\,x} = \frac{q}{1+q^2}\left(\frac{\pi}{2q} \pm l\,q\right)$ (VIII, 544).

2) $\int \frac{Cos\,x\,dx}{Sin\,x \pm q\,Cos\,x} = \frac{1}{1+q^2}\left(\pm\frac{1}{2}q\pi - l\,q\right)$ (VIII, 544).

3) $\int \frac{dx}{p+q\,Cos\,x} = \frac{1}{\sqrt{p^2-q^2}}\,Arccos\frac{q}{p}\,[q^2<p^2], = \frac{1}{\sqrt{q^2-p^2}}\,l\frac{q+\sqrt{q^2-p^2}}{p}\,[q^2>p^2], = \frac{1}{p}[q=p], =$
$= \infty\,[q=-p]$ (VIII, 205).

4) $\int \frac{Tg^p\,x\,dx}{1+Sin\,2x\,Cos\,\lambda} = \pi\,Cosec\,\lambda\,.\,Cosec\,p\pi\,.\,Sin\,p\lambda\,\left[\begin{matrix}p^2<1,\\ \lambda^2<\pi^2\end{matrix}\right]$ V. T. 20, N. 3.

5) $\int \frac{q\,Sin\,x - Cos\,x}{Sin\,x + q\,Cos\,x}\,dx = l\,q$ (IV, 113).

6) $\int \frac{dx}{p^2 \pm q^2\,Sin^2\,x} = \frac{\pi}{2p\sqrt{p^2 \pm q^2}} =$ 7) $\int \frac{dx}{p^2 \pm q^2\,Cos^2\,x}$ (VIII, 305).

8) $\int \frac{Sin\,x\,dx}{1 - Cos^2\lambda\,.\,Sin^2 x} = (\pi - 2\lambda)\,Cosec\,2\lambda$ (VIII, 543*).

9) $\int \frac{Sin^4\,x\,dx}{1+p\,Sin^2\,x} = \frac{\pi}{2p^2\sqrt{1+p}} + \frac{p-2}{4p^2}\pi$ (VIII, 338).

10) $\int \frac{Cos^{2a}\,x\,dx}{q^2 - Cos^2\,x} = \frac{\pi}{q^2}\sum_0^{\infty}\frac{3^{a+n/2}}{2^{a+n/2}}\,\frac{1}{q^{2n}}$ (VIII, 419).

11) $\int \frac{Cos^{2a+1}\,x\,dx}{q^2 - Cos^2\,x} = \frac{1}{q^2}\sum_0^{\infty}\frac{2^{a+n/2}}{3^{a+n/2}}\,\frac{1}{q^{2n}}$ (VIII, 420).

12) $\int \frac{Cos\,x\,dx}{Sin^2\lambda + Cos^2\lambda\,.\,Cos^2 x} = -\,Sec\,\lambda\,.\,l\,Tg\,\frac{1}{2}\lambda$ (VIII, 323).

13) $\int \frac{dx}{p^2\,Sin^2\,x + q^2\,Cos^2\,x} = \frac{\pi}{2pq}$ (VIII, 305).

14) $\int \frac{Sin^2\,x\,dx}{p^2\,Sin^2\,x + q^2\,Cos^2\,x} = \frac{\pi}{2p(p+q)}$ (VIII, 305).

15) $\int \frac{Cos^2\,x\,dx}{p^2\,Sin^2\,x + q^2\,Cos^2\,x} = \frac{\pi}{2q(p+q)}$ (VIII, 305).

16) $\int \frac{Cos\,2x\,dx}{p^2\,Sin^2\,x + q^2\,Cos^2\,x} = \frac{\pi}{2pq}\,\frac{p-q}{p+q}$ (VIII, 305).

17) $\int \frac{Sin\,2x\,dx}{p^2\,Sin^2\,x + q^2\,Cos^2\,x} = \frac{2}{p^2-q^2}\,l\frac{p}{q}$ (VIII, 546).

18) $\int \frac{Tang\, 2x\, dx}{p^2 Sin^2 x + q^2 Cos^2 x} = \frac{2}{p^2+q^2} l\frac{p}{q}$ (VIII, 531).

19) $\int \frac{Tang^r x\, dx}{p^2 Sin^2 x + q^2 Cos^2 x} = \frac{1}{2}\pi q^{r-1} p^{-r-1} Sec \frac{1}{2} r\pi$ V. T. 17, N. 10.

20) $\int \frac{Cos^r x . Cos\, r x\, dx}{p^2 Sin^2 x + q^2 Cos^2 x} = \frac{\pi}{2q} \frac{p^{r-1}}{(p+q)^r}$ (VIII, 611*).

21) $\int \frac{Tg^p x\, dx}{1 - Cos^2 \lambda . Sin^2 2x} = \frac{1}{2}\pi\, Sec \frac{1}{2} p\pi . Cosec \lambda . Cos\left\{p\left(\frac{1}{2}\pi - \lambda\right)\right\}$ V. T. 47, N. 4.

22) $\int \frac{Sin\, 2x . Tg^p x\, dx}{1 - Cos^2 \lambda . Sin^2 2x} = \pi\, Cosec \frac{1}{2} p\pi . Cosec\, 2\lambda . Sin\left\{p\left(\frac{1}{2}\pi - \lambda\right)\right\}$ V. T. 47, N. 4.

23) $\int \frac{Sin^2 x . Tg^p x\, dx}{1 - Cos^2 \lambda . Sin^2 2x} = \frac{1}{2}\pi\, Sec \frac{1}{2} p\pi . Cosec\, 2\lambda . Cos\left\{\frac{1}{2} p\pi - (p+1)\lambda\right\}$ V. T. 47, N. 4.

24) $\int \frac{Cos^2 x . Tg^p x\, dx}{1 - Cos^2 \lambda . Sin^2 2x} = \frac{1}{2}\pi\, Sec \frac{1}{2} p\pi . Cosec\, 2\lambda . Cos\left\{\frac{1}{2} p\pi - (p-1)\lambda\right\}$ V. T. 47, N. 4.

25) $\int \frac{Cos\, 2x . Tg^p x\, dx}{1 - Cos^2 \lambda . Sin^2 2x} = -\frac{1}{2}\pi\, Sec \frac{1}{2} p\pi . Sec \lambda . Sin\left\{p\left(\frac{1}{2}\pi - \lambda\right)\right\}$ V. T. 47, N. 23, 24.

Dans 21) à 25) on a $\lambda^2 < \pi^2$, $p^2 < 1$.

26) $\int \frac{Cos^2 x . Tg^{p-1} x\, dx}{1 - 3 Sin^2 x . Cos^2 x} = \frac{\pi}{\sqrt{3}} Cosec \frac{1}{2} p\pi . Sin\left\{\frac{2-p}{6}\pi\right\}$ $[4 > p]$ (IV, 114).

27) $\int \frac{Cos\, 2ax\, dx}{1 - p^2 Sin^2 x} = \frac{(-1)^a \pi}{2\sqrt{1-p^2}} \left\{\frac{1-\sqrt{1-p^2}}{p}\right\}^{2a}$ (IV, 136*).

28) $\int \frac{Tg\, x\, dx}{Cos^p x + Sec^p x} = \frac{\pi}{4p}$ V. T. 2, N. 12.

29) $\int \frac{Cos^p x + Cos^q x}{Cos^{p+q} x + 1} Tg\, x\, dx = \frac{\pi}{p+q} Sec\left(\frac{q-p}{q+p}\frac{\pi}{2}\right)$ V. T. 2, N. 18.

30) $\int \frac{Cos^p x - Cos^q x}{Cos^{p+q} x - 1} Tg\, x\, dx = \frac{\pi}{p+q} Tg\left(\frac{q-p}{q+p}\frac{\pi}{2}\right)$ V. T. 2, N. 19.

F. Circ. Dir. rat. fract. à dén. puiss. de bin. TABLE 48. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{dx}{(q\, Sin\, x + r\, Cos\, x)^2} = \frac{1}{qr}$ (VIII, 209).

2) $\int \frac{q\, Cos\, x - r\, Sin\, x}{(q\, Sin\, x + r\, Cos\, x)^2} dx = \frac{q-r}{qr}$ (VIII, 209).

3) $\int \frac{Cos^2 x . Tg^{p+1} x\, dx}{(1 + Cos \lambda . Sin\, 2x)^2} = \frac{\pi}{2 Sin\, p\pi . Sin^3 \lambda}(p\, Sin\, \lambda . Cos\, p\lambda - Cos\, \lambda . Sin\, p\lambda)$ V. T. 20, N. 8.

4) $\int \frac{dx}{(Tg\,x + Cot\,x)^2} = \frac{\pi}{16}$ V. T. 17, N. 16.

5) $\int \frac{Sin^{1-p} x . Cos^p x\, dx}{(Sin\,x + Cos\,x)^2} = \frac{1-p}{2} p\pi\, Cosec\, p\pi$ V. T. 16, N. 5.

6) $\int \frac{Tg\,x\,dx}{(Sec\,x - 1)^p} = \pi\, Cosec\, p\pi$ V. T. 3, N. 5.

7) $\int \frac{Sin\,2x\,dx}{(Cosec\,x - 1)^p} = (1+p)p\pi\, Cosec\, p\pi$ V. T. 3, N. 6.

8) $\int \frac{Sin^{p-1} x . Cos^{q-1} x\, dx}{(Sin\,x + Cos\,x)^{p+q}} = \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}$ V. T. 16, N. 7.

9) $\int \left[\left(r - i\,Tg\frac{x}{s}\right)^{-a} + \left(r + i\,Tg\frac{x}{s}\right)^{-a}\right] dx = \frac{\pi}{(r+s)^a}$ V. T. 19, N. 18.

10) $\int \left[\left(r - i\,Tg\frac{x}{s}\right)^{-a} - \left(r + i\,Tg\frac{x}{s}\right)^{-a}\right] Tg\frac{x}{s}\, dx = \frac{\pi s i}{(r+s)^a}$ V. T. 19, N. 19.

11) $\int \frac{Sin\,2x . Cos\,x\,dx}{(1 - Cos^2\lambda . Sin^2 x)^2} = \frac{\pi - 2\lambda - Sin\,2\lambda}{Sin\,2\lambda . Cos^2\lambda}$ V. T. 47, N. 8.

12) $\int \frac{(Tg\,x - Cot\,x)^{2q}}{(Tg^2 x + Cot^2 x)^{p+\frac{1}{2}}} Cosec^2\, 2x\, dx = 2^{q-p-2} Cos^2\, q\pi \frac{\Gamma(q+\frac{1}{2})\Gamma(p-q)}{\Gamma(p+\frac{1}{2})}$ V. T. 21, N. 15.

13) $\int \frac{dx}{(p^2 Sin^2 x + q^2 Cos^2 x)^2} = \frac{\pi}{4} \frac{p^2 + q^2}{p^3 q^3}$ (VIII, 338).

14) $\int \frac{Sin^2 x\, dx}{(p^2 Sin^2 x + q^2 Cos^2 x)^2} = \frac{\pi}{4p^3 q}$ (VIII, 565).

15) $\int \frac{Cos^2 x\, dx}{(p^2 Sin^2 x + q^2 Cos^2 x)^2} = \frac{\pi}{4pq^3}$ (VIII, 338).

16) $\int \frac{Cos\,2x\, dx}{(p^2 Sin^2 x + q^2 Cos^2 x)^2} = \frac{\pi}{4} \frac{p^2 - q^2}{p^3 q^3}$ (VIII, 338).

17) $\int \frac{dx}{(p^2 Sin^2 x + q^2 Cos^2 x)^3} = \frac{\pi}{16} \frac{3p^4 + 2p^2 q^2 + 3q^4}{p^5 q^5}$ (VIII, 566).

18) $\int \frac{Sin^2 x\, dx}{(p^2 Sin^2 x + q^2 Cos^2 x)^3} = \frac{\pi}{16} \frac{p^2 + 3q^2}{p^5 q^3}$ (VIII, 566).

19) $\int \frac{Cos^2 x\, dx}{(p^2 Sin^2 x + q^2 Cos^2 x)^3} = \frac{\pi}{16} \frac{3p^2 + q^2}{p^3 q^5}$ (VIII, 566).

20) $\int \frac{Cos\,2x\, dx}{(p^2 Sin^2 x + q^2 Cos^2 x)^3} = \frac{3\pi}{16} \frac{p^4 - q^4}{p^5 q^5}$ V. T. 48, N. 18, 19.

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21) $\int \frac{dx}{(p^2 Sin^2 x + q^2 Cos^2 x)^4} = \frac{\pi}{32} \frac{5p^6 + 3p^4 q^2 + 3p^2 q^4 + 5q^6}{p^7 q^7}$ (VIII, 566).

22) $\int \frac{Sin^2 x dx}{(p^2 Sin^2 x + q^2 Cos^2 x)^4} = \frac{\pi}{32} \frac{p^4 + 2p^2 q^2 + 5q^4}{p^7 q^5}$ (VIII, 566).

23) $\int \frac{Cos^2 x dx}{(p^2 Sin^2 x + q^2 Cos^2 x)^4} = \frac{\pi}{32} \frac{5p^4 + 2p^2 q^2 + q^4}{p^5 q^7}$ (VIII, 566).

24) $\int \frac{Sin^4 x dx}{(p^2 Sin^2 x + q^2 Cos^2 x)^4} = \frac{\pi}{32} \frac{p^2 + 5q^2}{p^7 q^3}$ (VIII, 566).

25) $\int \frac{Cos^4 x dx}{(p^2 Sin^2 x + q^2 Cos^2 x)^4} = \frac{\pi}{32} \frac{5p^2 + q^2}{p^3 q^7}$ (VIII, 566).

26) $\int \frac{Sin^2 x . Cos^2 x dx}{(p^2 Sin^2 x + q^2 Cos^2 x)^4} = \frac{\pi}{32} \frac{p^2 + q^2}{p^5 q^5}$ (VIII, 566).

27) $\int \frac{Cos 2x dx}{(p^2 Sin^2 x + q^2 Cos^2 x)^4} = \frac{\pi}{32} \frac{5p^6 + p^4 q^2 - p^2 q^4 - 5q^6}{p^7 q^7}$ V. T. 48, N. 22, 23.

28) $\int \frac{Sin^{2r-1} x . Cos^{2s-1} x dx}{(p^2 Sin^2 x + q^2 Cos^2 x)^{r+s}} = \frac{\Gamma(r)\Gamma(s)}{\Gamma(r+s)} \frac{1}{2p^{2r} q^{2s}}$ V. T. 17, N. 19.

F. Circ. Dir. rat. fract. à dén. bin. comp. TABLE 49. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{Tg^p x}{Sin x + Cos x} \frac{dx}{Sin x} = \pi \, Cosec \, p\pi$ V. T. 18, N. 1.

2) $\int \frac{Tg^p x}{Sin x - Cos x} \frac{dx}{Sin x} = -\pi \, Cot \, p\pi$ V. T. 18, N. 2.

3) $\int \frac{1}{1 + Cos \lambda . Sin 2x} \frac{dx}{Tg^p x} = \frac{\pi}{Sin p\pi} \frac{Sin p\lambda}{Sin \lambda} \left[\begin{matrix} p^2 < 1, \\ \lambda^2 < \pi^2 \end{matrix}\right]$ V. T. 20, N. 3.

4) $\int \frac{Sin^2 x}{p^2 Sin^2 x + q^2 Cos^2 x} \frac{dx}{Cos 2x} = \frac{-1}{2p} \frac{q\pi}{p^2 + q^2}$ (VIII, 531).

5) $\int \frac{Cos^2 x}{p^2 Sin^2 x + q^2 Cos^2 x} \frac{dx}{Cos 2x} = \frac{p}{2q} \frac{\pi}{p^2 + q^2}$ (VIII, 531).

6) $\int \frac{1}{1 - q Cos^2 x} \frac{dx}{Tg^p x} = \frac{1}{\sqrt{1 - q}^{p+1}} \frac{\pi}{2} Sec \frac{1}{2} p\pi \left[\begin{matrix} p^2 < 1, \\ q < 1 \end{matrix}\right]$ (VIII, 558).

7) $\int \frac{1}{1 - Cos^2 \lambda . Sin^2 2x} \frac{dx}{Tg^p x} = \frac{\pi}{2 Cos \frac{1}{2} p\pi} \frac{Cos \{p(\frac{1}{2}\pi - \lambda)\}}{Sin \lambda}$ V. T. 49, N. 3.

8) $\int \frac{Sin\,2x}{1-Cos^2\lambda.Sin^2 2x}\,\frac{dx}{Tg^p x}=\frac{\pi}{Sin\,\frac{1}{2}p\pi}\,\frac{Sin\{p(\frac{1}{2}\pi-\lambda)\}}{Sin\,2\lambda}$ V. T. 49, N. 3.

9) $\int \frac{Sin^2 x}{1-Cos^2\lambda.Sin^2 2x}\,\frac{dx}{Tg^p x}=\frac{\pi}{2\,Cos\,\frac{1}{2}p\pi}\,\frac{Cos\{\frac{1}{2}p\pi-(p-1)\lambda\}}{Sin\,2\lambda}$ V. T. 49, N. 3.

10) $\int \frac{Cos^2 x}{1-Cos^2\lambda.Sin^2 2x}\,\frac{dx}{Tg^p x}=\frac{\pi}{2\,Cos\,\frac{1}{2}p\pi}\,\frac{Cos\{\frac{1}{2}p\pi-(p+1)\lambda\}}{Sin\,2\lambda}$ V. T. 49, N. 3.

11) $\int \frac{Cos\,2x}{1-Cos^2\lambda.Sin^2 2x}\,\frac{dx}{Tg^p x}=\frac{\pi}{2\,Cos\,\frac{1}{2}p\pi}\,\frac{Sin\{p(\frac{1}{2}\pi-\lambda)\}}{Cos\,\lambda}$ V. T. 49, N. 9, 10.

Dans 7) à 11) on a $\lambda^2<\pi^2$, $p^2<1$.

12) $\int \frac{Cos^p x+Sec^p x}{Cos^q x+Sec^q x}\,Tg\,x\,dx=\frac{\pi}{2q}\,Sec\,\frac{p\pi}{2q}$ V. T. 4, N. 14.

13) $\int \frac{Cos^p x-Sec^p x}{Cos^q x-Sec^q x}\,Tg\,x\,dx=\frac{\pi}{2q}\,Tg\,\frac{p\pi}{2q}$ V. T. 4, N. 15.

14) $\int \frac{1}{Sin^p x+Cosec^p x}\,\frac{dx}{Tg\,x}=\frac{\pi}{4p}$ V. T. 2, N. 12.

15) $\int \frac{Sin^p x+Sin^q x}{Sin^{p+q}x+1}\,\frac{dx}{Tg\,x}=\frac{\pi}{p+q}\,Sec\left(\frac{p-q}{p+q}\,\frac{\pi}{2}\right)$ V. T. 2, N. 18.

16) $\int \frac{Sin^p x-Sin^q x}{Sin^{p+q}x-1}\,\frac{dx}{Tg\,x}=\frac{\pi}{p+q}\,Tg\left(\frac{p-q}{p+q}\,\frac{\pi}{2}\right)$ V. T. 2, N. 19.

17) $\int \frac{dx}{(p\,Sin\,x+q\,Cos\,x)(r\,Sin\,x+s\,Cos\,x)}=\frac{1}{ps-qr}\,l\frac{ps}{qr}$ (VIII, 545).

18) $\int \frac{Sin\,x}{Sin^2 x+p^2 Cos^2 x}\,\frac{dx}{Sin\,x+q\,Cos\,x}=\frac{1}{p^2+q^2}\left(\frac{1}{2}p\pi+q\,l\frac{q}{p}\right)$ (VIII, 543).

19) $\int \frac{Cos\,x}{Sin^2 x+p^2 Cos^2 x}\,\frac{dx}{Sin\,x+q\,Cos\,x}=\frac{1}{p^2+q^2}\left(\frac{q\pi}{2p}+l\frac{p}{q}\right)$ (VIII, 543).

20) $\int \frac{Sin\,x}{Sin^2 x+p^2 Cos^2 x}\,\frac{dx}{Sin\,x-q\,Cos\,x}=\frac{1}{p^2+q^2}\left(\frac{1}{2}p\pi+q\,l\frac{p}{q}\right)$ (VIII, 544).

21) $\int \frac{Cos\,x}{Sin^2 x+p^2 Cos^2 x}\,\frac{dx}{Sin\,x-q\,Cos\,x}=\frac{1}{p^2+q^2}\left(-\frac{q\pi}{2p}+l\frac{p}{q}\right)$ (VIII, 544).

22) $\int \frac{Sin^2 x}{(1+Cos\,\lambda\,.\,Sin\,2x)^2}\,\frac{dx}{Tg^{p+1}x}=\frac{\pi}{2\,Sin\,p\pi}\,\frac{p\,Sin\,\lambda.Cos\,p\lambda-Cos\,\lambda.Sin\,p\lambda}{Sin^3\lambda}$ V. T. 20, N. 8.

23) $\int \frac{Tg^{p+1}x}{(1+Tg\,x)^2}\,\frac{dx}{Sin\,2x}=\frac{1-p}{4}\,p\pi\,Cosec\,p\pi$ V. T. 16, N. 5.

24) $\int \left(\frac{Tg^p x-Cot^p x}{Cos\,x-Sin\,x}\right)^2 dx=2(1-2p\pi\,Cot\,2p\pi)$ $\left[p^2<\frac{1}{4}\right]$ V. T. 21, N. 11.

25) $\int \frac{1}{(Tg^p x + Cot^p x)^q} \frac{dx}{Tg x} = \frac{\sqrt{\pi}}{2^{2q+1} p} \frac{\Gamma(q)}{\Gamma(q+\frac{1}{2})} =$ 26) $\int \frac{1}{(Tg^p x + Cot^p x)^q} \frac{dx}{Sin 2x}$ (VIII, 422).

27) $\int \frac{1}{(Cosec x - 1)^p} \frac{dx}{Tg x} = \pi Cosec p\pi$ V. T. 3, N. 5.

28) $\int \frac{Cos^{2a} x}{(1-q Cos^2 x)^{a+1}} \frac{dx}{Tg^p x} = \frac{(p+1)^{a/2}}{2^{a/2}} \frac{\pi Sec \frac{1}{2} p\pi}{2(1-q)^{\frac{1}{2}(p+1)+a}} \left[\begin{matrix} p^2 \lesseqgtr 1, \\ q^2 < 1 \end{matrix}\right]$ (IV, 118).

29) $\int \frac{(1+Tg x)^q - 1}{(1+Tg x)^{p+q}} \frac{dx}{Sin 2x} = \frac{1}{2} \{Z'(p+q) - Z'(p)\}$ V. T. 18, N. 5.

F. Circ. Dir. rat. fract. à dén. trin. et comp. TABLE 50. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{Sin^2 x\, dx}{1-2q Cos 2x + q^2} = \frac{1}{4} \frac{\pi}{1+q}$ (VIII, 561).

2) $\int \frac{Cos^2 x\, dx}{1-2q Cos 2x + q^2} = \frac{1}{4} \frac{\pi}{1-q} [q^2 < 1], = \frac{1}{4} \frac{\pi}{q-1} [q^2 > 1]$ (VIII, 561).

3) $\int \frac{Tang^p x . Sin 2x\, dx}{1-2q Cos 2x + q^2} = \frac{\pi}{4q} Cosec \frac{1}{2} p\pi . \left\{1 - \left(\frac{1-q}{1+q}\right)^p\right\} [q^2 < 1], = \frac{\pi}{4q} Cosec \frac{1}{2} p\pi . \left\{1 + \left(\frac{q-1}{q+1}\right)^p\right\}$ $[q^2 > 1]$ (VIII, 678).

4) $\int \frac{1-q Cos 2x}{1-2q Cos 2x + q^2} Tg^p x\, dx = \frac{1}{4} \pi Sec \frac{1}{2} p\pi . \left\{1 + \left(\frac{1-q}{1+q}\right)^p\right\} [q^2 < 1], = \frac{1}{4} \pi Sec \frac{1}{2} p\pi . \left\{1 - \left(\frac{q-1}{q+1}\right)^p\right\}$ $[q^2 > 1]$ (VIII, 677).

5) $\int \frac{Cos^a x . Cos ax\, dx}{1-2q Cos 2x + q^2} = \frac{\pi}{2(1-q^2)} \left(\frac{1+q}{2}\right)^a$ (VIII, 477)

6) $\int \frac{Cos^a x . Sin ax . Sin 2x\, dx}{1-2q Cos 2x + q^2} = \frac{\pi}{4q} \left\{\left(\frac{1+q}{2}\right)^a - \frac{1}{2^a}\right\}$ (VIII, 477)

(5 et 6) $[q^2 < 1]$.

7) $\int \frac{1-q Cos 2ax}{1-2q Cos 2ax + q^2} Cos^b x . Cos bx\, dx = \frac{\pi}{2^{b+1}} \sum_1^\infty \binom{b}{na} q^n$ (IV, 138*).

8) $\int \frac{Cos^3 x\, dx}{1+2 Cos\lambda . Sin x + Sin^2 x} = Cos\lambda . l\{2(1+Cos\lambda)\} + \lambda Sin\lambda - 1$ V. T. 6, N. 6.

9) $\int \frac{dx}{p + q Sin^2 x + r Cos^2 x} = \frac{\pi}{2\sqrt{(p+q)(p+r)}}$ (VIII, 305).

10) $\int \frac{Sin px}{1-2q Cos 2x + q^2} \frac{Sin x\, dx}{Cos^{p-1} x} = 2^{p-2} \frac{\pi}{q} \{1-(1+q)^{-p}\} [q^2 < 1], = 2^{p-2} \frac{\pi}{q} \left\{1 - \left(\frac{q}{q+1}\right)^p\right\}$ $[q^2 > 1]$

11) $\int \frac{1-q\,Cos\,2x}{1-2q\,Cos\,2x+q^2}\,\frac{Cos\,px\,dx}{Cos^p\,x} = 2^{p-2}\pi\left\{1+(1+q)^{-p}\right\}\,[q^2<1], = 2^{p-2}\pi\left\{1+\left(\frac{q}{q+1}\right)^p\right\}$
$[q^2>1]$

12) $\int \frac{Sin\left\{p\left(\frac{1}{2}\pi-x\right)\right\}}{1-2q\,Cos\,2x+q^2}\,\frac{Cos\,x\,dx}{Sin^{p-1}\,x} = 2^{p-3}\frac{\pi}{q}\left\{1-(1-q)^{-p}\right\}\,[q^2<1], = 2^{p-3}\frac{\pi}{q}\left\{1-\left(\frac{q}{q-1}\right)^p\right\}$
$[q^2>1]$

13) $\int \frac{Cos\left\{p\left(\frac{1}{2}\pi-x\right)\right\}}{1-2q\,Cos\,2x+q^2}\,\frac{1-q\,Cos\,2x}{Sin^p\,x}\,dx = 2^{p-2}\pi\left\{1+(1-q)^{-p}\right\}\,[q^2<1], = 2^{p-2}\pi\left\{1+\left(\frac{q}{q-1}\right)^p\right\}$
$[q^2>1]$ Sur 10) à 13) voyez Cauchy, Ann. Math. T. 17, 84.

14) $\int \frac{Sin^p\,x+Cosec^p\,x}{Sin^q\,x+2\,Cos\,\lambda+Cosec^q\,x}\,\frac{dx}{Tg\,x} = \frac{\pi}{q}\,Cosec\,\lambda\,.\,Cosec\frac{p\pi}{q}\,.\,Sin\frac{p\lambda}{q}$ V. T. 6, N. 16.

15) $\int \frac{Sin^p\,x-2\,Cos\,\lambda+Cosec^p\,x}{Sin^q\,x+2\,Cos\,\mu+Cosec^q\,x}\,\frac{dx}{Tg\,x} = \frac{\pi}{q}\,Cosec\,\mu\,.\,Cosec\frac{p\pi}{q}\,.\,Sin\frac{p\mu}{q} - \frac{\mu}{q}\,Cosec\,\mu\,.\,Cos\,\lambda$ V. T. 6, N. 20.

16) $\int \frac{dx}{\left\{1+q\left(1-p\,Sin^2\,x\right)\right\}\left(1-p\,Sin^2\,x\right)} = \frac{\pi}{2\sqrt{1-p}} - \frac{q\pi}{2\sqrt{(1+q)(1-pq+q)}}$ (IV, 120).

17) $\int \frac{Sin^2\,x\,.\,Cos^2\,x}{1-2q\,Cos\,2x+q^2}\,\frac{dx}{1-2p\,Cos\,2x+p^2} = \frac{\pi}{16}\,\frac{1}{1-pq}$ (VIII, 560).

18) $\int \frac{Tg^{2p-1}\,x\,dx}{1-2r\left(Cos\,\alpha\,.\,Cos^2\,x+Cos\,\beta\,.\,Sin^2\,x\right)+r^2} = \frac{\pi}{\left(1-2r\,Cos\,\alpha+r^2\right)^{1-p}}\,\frac{Cosec\,p\pi}{\left(1-2r\,Cos\,\beta+r^2\right)^p}$
Enneper, Schl. Z. B. 7, 346.

F. Circ. Dir. rat. fract. comp. à argum. $Tg\,x$. TABLE 51. Lim. 0 et $\frac{\pi}{2}$.

1) $\int Sin\,(q\,Tg\,x)\,\frac{dx}{Sin\,2x} = \frac{1}{4}\pi$ V. T. 51, N. 15.

2) $\int Sin\,(q\,Tg\,x)\,\frac{dx}{Tg\,x} = \frac{1}{2}\pi\left(1-e^{-q}\right)$ V. T. 172, N. 1.

3) $\int Sin\,(q\,Tg\,x)\,\frac{dx}{Cos\,2x} = Ci(q)\,.\,Sin\,q - Si(q)\,.\,Cos\,q$ V. T. 161, N. 3.

4) $\int Sin\,(q\,Tg\,x)\,\frac{Tg\,x\,dx}{Cos\,2x} = -\frac{1}{2}\pi\,Cos\,q$ V. T. 161, N. 4.

5) $\int Sin\,(q\,Tg\,x)\,.\,Cos^{p-2}x\,\frac{dx}{Sin^p\,x} = \frac{1}{2}\pi\,Cosec\,\frac{1}{2}p\pi\,.\,q^{p-1}\,\Gamma(p)$ Cauchy, Ann. Math. T. 17, 84.

6) $\int Sin(q\,Tg\,x)\,\frac{dx}{Cos2x\,.\,Tg\,x} = \frac{1}{2}\pi(1 - Cos\,q)$ V. T. 172, N. 4.

7) $\int Sin^2(q\,Tg\,x)\,\frac{dx}{Tg^2\,x} = \frac{1}{4}\pi(e^{-2q} + 2q - 1)$ V. T. 172, N. 13.

8) $\int Sin^2(q\,Tg\,x)\,\frac{dx}{Cos\,2\,x\,.\,Tg^2\,x} = \frac{1}{4}\pi(2\,q - Sin\,2\,q)$ V. T. 172, N. 14.

9) $\int Cos(q\,Tg\,x)\,\frac{dx}{Cos\,2\,x} = \frac{1}{2}\pi\,Sin\,q$ V. T. 161, N. 5.

10) $\int Cos(q\,Tg\,x)\,\frac{Tg\,x\,dx}{Cos\,2\,x} = Ci(q)\,.\,Cos\,q + Si(q)\,.\,Sin\,q$ V. T. 161, N. 6.

11) $\int Cos(q\,Tg\,x)\left(\frac{Cos\,x}{Cos\,2\,x}\right)^2 dx = \frac{1}{4}\pi(Sin\,q - q\,Cos\,q)$ V. T. 171, N. 3.

12) $\int Cos(q\,Tg\,x)\,.\,Cos^{p-2}x\,\frac{dx}{Sin^p\,x} = \frac{1}{2}\pi\,Sec\,\frac{1}{2}p\pi\,.\,\Gamma(p)\,q^{p-1}$ Cauchy, Ann. Math. T. 17, 84.

13) $\int Cos^2(q\,Tg\,x)\,\frac{dx}{Cos\,2\,x} = \frac{1}{4}\pi\,Sin\,2\,q$ V. T. 161, N. 10.

14) $\int [1 - Sec^2\,x\,.\,Cos(Tg\,x)]\,\frac{dx}{Tg\,x} = A$ V. T. 173, N. 21.

15) $\int Sin(a\,Tg\,x + q\,x)\,\frac{Cos^{q-1}\,x\,dx}{Sin\,x} = \frac{1}{2}\pi$ (IV, 121).

F. Circ. Dir. rat. fract. comp. à autre argum. TABLE 52. Lim. 0 et $\frac{\pi}{2}$.

1) $\int Sin(q\,Cot\,x)\,\frac{dx}{Tg\,x} = \frac{1}{2}\pi\,e^{-q}$ V. T. 160, N. 4.

2) $\int Sin(q\,Cot\,x)\,\frac{Tg\,x\,dx}{Cos\,2\,x} = \frac{1}{2}\pi(Cos\,q - 1)$ V. T. 172, N. 4.

3) $\int Sin(q\,Cot\,x)\,\frac{dx}{Cos2\,x\,.\,Tg\,x} = \frac{1}{4}\pi\,Cos\,q$ V. T. 161, N. 4.

4) $\int Sin^2(q\,Cot\,x)\,\frac{Tg^2\,x\,dx}{Cos\,2\,x} = \frac{1}{4}\pi(Sin\,2\,q - 2\,q)$ V. T. 172, N. 14.

5) $\int Cos(q\,Cot\,x)\,\frac{dx}{Tg\,x} = -\frac{1}{2}\{e^{-q}\,Ei(q) + e^q\,Ei(-q)\}$ V. T. 160, N. 6.

6) $\int Cos(q\,Cot\,x)\frac{dx}{Cos\,2x} = -\frac{1}{2}\pi\,Sin\,q$ V. T. 161, N. 5.

7) $\int Cos(q\,Cot\,x)\frac{dx}{Cos\,2x.Tg\,x} = -Ci(q).Cos\,q - Si(q).Sin\,q$ V. T. 161, N. 6.

8) $\int Cos(q\,Cot\,x)\left(\frac{Sin\,x}{Cos\,2x}\right)^2 dx = \frac{1}{4}\pi(Sin\,q - q\,Cos\,q)$ V. T. 171, N. 3.

9) $\int Cos^2(q\,Cot\,x)\frac{dx}{Cos\,2x} = -\frac{1}{4}\pi\,Sin\,2q$ V. T. 161, N. 10.

10) $\int Sin(q\,Sin\,x)\frac{dx}{Tg\,x} = Si(p)$ V. T. 149, N. 5.

11) $\int Sin(p\,Cosec\,x).Sin(p\,Cot\,x)\frac{dx}{Cos\,x} = \frac{1}{2}\pi\,Sin\,p =$ 12) $\int Sin(p\,Sec\,x).Sin(p\,Tg\,x)\frac{dx}{Sin\,x}$ V. T. 149, N. 15.

13) $\int Sin\left(\frac{1}{2}p\pi - q\,Cot\,x\right)\frac{dx}{Tg^{p-1}x} = \frac{1}{2}\pi e^{-q} =$ 14) $\int Cos\left(\frac{1}{2}p\pi - q\,Cot\,x\right)\frac{dx}{Tg^p\,x}$ V. T. 160, N. 20, 21.

F. Circ. Dir. irr. ent. à un fact. $\sqrt{1-p^2 Sin^2 x}$. $[p^2<1]$. TABLE 53. Lim. 0 et $\frac{\pi}{2}$.

1) $\int dx\sqrt{1-p^2 Sin^2 x} = E'(p)$ M. D. 16, 28.

2) $\int Sin\,x\,dx\sqrt{1-p^2 Sin^2 x} = \frac{1}{2}\left\{1 + \frac{1-p^2}{2p}\,l\frac{1+p}{1-p}\right\}$ (VIII, 314).

3) $\int Cos\,x\,dx\sqrt{1-p^2 Sin^2 x} = \frac{1}{2}\sqrt{1-p^2} + \frac{1}{2p}Arcsin\,p$ (M. D. 16, 28).

4) $\int Cos\,2x\,dx\sqrt{1-p^2 Sin^2 x} = \frac{1}{3p^2}\{(2-p^2)E'(p) - 2(1-p^2)F'(p)\}$ (VIII, 255).

5) $\int Sin^2 x\,dx\sqrt{1-p^2 Sin^2 x} = \frac{1}{3p^2}\{(1-p^2)F'(p) - (1-2p^2)E'(p)\}$ (VIII, 254).

6) $\int Sin\,x.Cos\,x\,dx\sqrt{1-p^2 Sin^2 x} = \frac{1}{3p^2}\{1 - \sqrt{1-p^2}^3\}$ (M. D. 16, 28).

7) $\int Cos^2 x\,dx\sqrt{1-p^2 Sin^2 x} = \frac{1}{3p^2}\{(1+p^2)E'(p) - (1-p^2)F'(p)\}$ (VIII, 254).

8) $\int Tg^2 x\,dx\sqrt{1-p^2 Sin^2 x} = \infty$ (IV, 123).

9) $\int Sin^3 x\, dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{8p^2}\left\{3p^2-1+\frac{1-p^2}{2}\;\frac{1+3p^2}{p}\; l\frac{1+p}{1-p}\right\}$ (VIII, 314).

10) $\int Sin^2 x . Cos\, x\, dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{8p^2}\left\{\frac{1}{p} Arcsin\, p-(1-2p^2)\sqrt{1-p^2}\right\}$.

11) $\int Sin\, x . Cos^2 x\, dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{8p^2}\left\{1+p^2-\frac{(1-p^2)^2}{2p}\; l\frac{1+p}{1-p}\right\}$.

12) $\int Cos^3 x\, dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{8p^2}\left\{(1+2p^2)\sqrt{1-p^2}-\frac{1-4p^2}{p} Arcsin\, p\right\}$.

13) $\int Sin^4 x\, dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{15p^4}\left\{2(1+2p^2)(1-p^2)\mathrm{F}'(p)-(2+3p^2-8p^4)\mathrm{E}'(p)\right\}$.

14) $\int Sin^3 x . Cos\, x\, dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{15p^4}\left\{2-(2+3p^2)\sqrt{1-p^2}^{\,3}\right\}$.

15) $\int Sin^2 x . Cos^2 x\, dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{15p^4}\left\{2(1-p^2+p^4)\mathrm{E}'(p)-(2-p^2)(1-p^2)\mathrm{F}'(p)\right\}$.

16) $\int Sin\, x . Cos^3 x\, dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{15p^4}\left\{-2+5p^2+2\sqrt{1-p^2}^{\,5}\right\}$.

17) $\int Cos^4 x\, dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{15p^4}\left\{2(1-3p^2)(1-p^2)\mathrm{F}'(p)-(2-7p^2-3p^4)\mathrm{E}'(p)\right\}$.

18) $\int Sin^5 x\, dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{48p^4}\left\{(5p^2-3)(3p^2+1)+\frac{3}{2p}(1-p^2)(1+2p^2+5p^4)\; l\frac{1+p}{1-p}\right\}$.

19) $\int Sin^4 x . Cos\, x\, dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{48p^4}\left\{-(3+2p^2-8p^4)\sqrt{1-p^2}+\frac{3}{p} Arcsin\, p\right\}$.

20) $\int Sin^3 x . Cos^2 x\, dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{48p^4}\left\{(3-2p^2+3p^4)-\frac{3}{2p}(1+p^2)(1-p^2)^2\; l\frac{1+p}{1-p}\right\}$.

21) $\int Sin^2 x . Cos^3 x\, dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{48p^4}\left\{(3+4p^2+4p^4)\sqrt{1-p^2}-\frac{3}{p}(1-2p^2) Arcsin\, p\right\}$.

22) $\int Sin\, x . Cos^4 x\, dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{48p^4}\left\{-3+8p^2+3p^4-\frac{3}{2p}(1-p^2)^3\; l\frac{1+p}{1-p}\right\}$.

23) $\int Cos^5 x\, dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{48p^4}\left\{-(3+10p^2-8p^4)\sqrt{1-p^2}+\frac{3}{p}(1-4p^2+8p^4) Arcsin\, p\right\}$.

24) $\int Sin^6 x\, dx \sqrt{1-v^2 Sin^2 x} = \frac{1}{105p^6}\left\{(8+13p^2+24p^4)(1-p^2)\mathrm{F}'(p)-(8+9p^2+\right.$

$\left.+16p^4-48p^6)\mathrm{E}'(p)\right\}$.

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25) $\int Sin^5 x . Cos x dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{105 p^6} \{8-(8+12p^2+15p^4)\sqrt{1-p^2}^3\}$.

26) $\int Sin^4 x . Cos^2 x dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{105 p^6} \{(8-13p^2+8p^4)(1+p^2)E'(p)-(8-p^2-4p^4)(1-p^2)F'(p)\}$.

27) $\int Sin^3 x . Cos^3 x dx \sqrt{1-p^2 Sin^2 x} = \frac{2}{105 p^6} \{-4+7p^2+(4+3p^2)\sqrt{1-p^2}^5\}$.

28) $\int Sin^2 x . Cos^4 x dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{105 p^6} \{(8-15p^2+3p^4)(1-p^2)F'(p)-(8-19p^2+9p^4-6p^6)E'(p)\}$.

29) $\int Sin x . Cos^5 x dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{105 p^6} \{8-28p^2+35p^4-8\sqrt{1-p^2}^7\}$.

30) $\int Cos^6 x dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{105 p^6} \{(8-33p^2+58p^4+15p^6)E'(p)-(8-29p^2+45p^4)(1-p^2)F'(p)\}$.

31) $\int Sin^7 x . Cos x dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{315 p^8} \{16-(16+24p^2+30p^4+35p^6)\sqrt{1-p^2}^3\}$.

32) $\int Sin^5 x . Cos^3 x dx \sqrt{1-p^2 Sin^2 x} = \frac{2}{315 p^8} \{-4(2-3p^2)+(8+8p^2+5p^4)\sqrt{1-p^2}^5\}$.

33) $\int Sin^3 x . Cos^5 x dx \sqrt{1-p^2 Sin^2 x} = \frac{2}{315 p^8} \{(8-24p^2+21p^4)-4(2+p^2)\sqrt{1-p^2}^7\}$.

34) $\int Sin x . Cos^7 x dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{315 p^8} \{-16+72p^2-126p^4+105p^6+16\sqrt{1-p^2}^9\}$.

Sur 10) à 34) voyez M. D. 16, 28.

35) $\int Sin^4 x dx \sqrt{1-p^2 Sin^2 2x} = \frac{1}{8p^2} \{(1+2p^2)E'(p)-(1-p^2)F'(p)\}$ V. T. 21, N. 32.

F. Circ. Dir. irrat. ent. Autre forme. $[p^2<1]$. TABLE 54. Lim. 0 et $\frac{\pi}{2}$.

1) $\int dx \sqrt{1-p^2 Sin^2 x}^3 = \frac{1}{3} \{2(2-p^2)E'(p)-(1-p^2)F'(p)\}$ (VIII, 255).

2) $\int Sin x dx \sqrt{1-p^2 Sin^2 x}^3 = \frac{1}{8} \left\{5-3p^2+\frac{3}{2p}(1-p^2)^2 l\frac{1+p}{1-p}\right\}$.

3) $\int Sin^2 x dx \sqrt{1-p^2 Sin^2 x}^3 = \frac{1}{15 p^2} \{(3-4p^2)(1-p^2)F'(p)-(3-13p^2+8p^4)E'(p)\}$.

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4) $\int Cos^2 x\,dx\,\sqrt{1-p^2 Sin^2 x}^3 = \frac{1}{15p^2}\{(3+7p^2-2p^4)E'(p)-(3+p^2)(1-p^2)F'(p)\}$.

5) $\int Sin^2 x\,dx\,\sqrt{1-p^2 Sin^2 x}^3 = \frac{1}{48p^2}\left\{-3+22p^2-15p^4+\frac{3}{2p}(1+5p^2)(1-p^2)^2\,l\frac{1+p}{1-p}\right\}$.

6) $\int Sin\,x\,.\,Cos^2 x\,dx\,\sqrt{1-p^2 Sin^2 x}^3 = \frac{1}{48p^2}\left\{3-8p^2-3p^4-\frac{3}{2p}(1-p^2)^3\,l\frac{1+p}{1-p}\right\}$.

7) $\int Sin^4 x\,dx\,\sqrt{1-p^2 Sin^2 x}^3 = \frac{1}{35p^4}\{(2+5p^2-8p^4)(1-p^2)F'(p)-2(1+2p^2-$
$-12p^4+8p^6)E'(p)\}$.

8) $\int Sin^2 x\,.\,Cos^2 x\,dx\,\sqrt{1-p^2 Sin^2 x}^3 = \frac{1}{105p^4}\{(6-9p^2+19p^4-8p^6)E'(p)-2(3-3p^2+2p^4)$
$(1-p^2)F'(p)\}$.

9) $\int Cos^4 x\,dx\,\sqrt{1-p^2 Sin^2 x}^3 = \frac{1}{35p^4}\{(2-9p^2-p^4)(1-p^2)F'(p)-2(1-6p^2+p^4)$
$(1+p^2)E'(p)\}$. Sur 2) à 9) voyez M. D. 16, 28.

10) $\int Sin^q x.Cos^{3-q} x.(1-p^2 Sin^2 x)^{1-\frac{1}{2}q}\,dx = \frac{\Gamma\left(\frac{q+1}{2}\right)\Gamma\left(2-\frac{q}{2}\right)}{p^3\sqrt{\pi}(q-1)(q-3)(q-5)}\left\{\frac{1+(q-3)p+p^2}{(1+p)^{q-3}}-\right.$
$\left.-\frac{1-(q-3)p+p^2}{(1-p)^{q-3}}\right\}$ V. T. 7, N. 6.

11) $\int dx\,\sqrt[3]{Sin\,x} = \frac{1-\sqrt{3}}{\sqrt[4]{3}}F'\left(Cos\frac{\pi}{12}\right)+2\sqrt[4]{3}\,.\,E'\left(Cos\frac{\pi}{12}\right)$ (VIII, 303).

12) $\int dx\,\sqrt[3]{Sin^2 x} = 3\sqrt[4]{3}\,.\,E'\left(Sin\frac{\pi}{12}\right)-3\frac{1+\sqrt{3}}{2\sqrt[4]{3}}F'\left(Sin\frac{\pi}{12}\right)$ (VIII, 303).

F. Circ. Dir. irrat. fract. à dén. monôme. TABLE 55. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{dx}{\sqrt{Sin\,x}} = \sqrt{2}\,.\,F'\left(Sin\frac{\pi}{4}\right)$ (VIII, 298). 2) $\int \frac{dx}{Cos\,2x}\sqrt{Sin^4 x+Cos^4 x} = 0$ (VIII, 545).

3) $\int \frac{dx}{Cos^2 x}\sqrt{1-p^2 Sin^2 x} = \infty$ (IV, 125).

4) $\int dx\sqrt{\frac{1-p^2 Sin^2 x}{Sin\,x}} = \frac{2aF'(a)+2bF'(b)}{(a+b)^2}+2\frac{b-a}{(a+b)^2}\{E'(b)-E'(a)\}$ $\left[2a^2=\frac{(1-\sqrt{p})^2}{1+p},\ 2b^2=\frac{(1+\sqrt{p})^2}{1+p}\right]$
V. T. 9, N. 12.

5) $\int \frac{dx}{\sqrt[3]{Sin\,x}} = \frac{1}{\sqrt[4]{3}} F'\left(Cos\,\frac{\pi}{12}\right)$ (VIII, 303). 6) $\int \frac{dx}{\sqrt[3]{Sin^2 x}} = \frac{3}{\sqrt[4]{3}} F'\left(Sin\,\frac{\pi}{12}\right)$ (VIII, 303).

7) $\int dx \sqrt[3]{\frac{Cos\,x}{Tang\,x}} = 2\sqrt[4]{3}.\sqrt[3]{2}.E'\left(Cos\,\frac{\pi}{12}\right) - \frac{1-\sqrt{3}}{\sqrt[4]{3}}\sqrt[3]{2}.F'\left(Cos\,\frac{\pi}{12}\right) =$ 8) $\int dx \sqrt[3]{\frac{Sin^2 x}{Cos\,x}}$ (VIII, 423).

9) $\int dx \sqrt[3]{\frac{Cos\,x}{Sin^2 x}} = \frac{\sqrt[3]{4}}{\sqrt[4]{3}} F'\left(Cos\,\frac{\pi}{12}\right) =$ 10) $\int dx \sqrt[3]{\frac{Tang\,x}{Cos\,x}}$ (VIII, 423).

11) $\int \frac{Cos\,x - Sin\,x}{\sqrt[4]{Cos^3 2x}} dx = 0$ V. T. 21, N. 4.

12) $\int \frac{Sin^{p-\frac{1}{2}} x\,dx}{Cos^{2p-1} x} = \frac{2^{\frac{1}{2}-p}}{2p-1} \frac{\Gamma(p+\frac{1}{2})\Gamma(1-p)}{\sqrt{\pi}} Sin\left(\frac{2p-1}{4}\pi\right)$ $[p<1]$ V. T. 8, N. 24.

13) $\int (Sec\,x - 1)^{p+\frac{1}{2}} Sin\,x\,dx = \frac{2p+1}{2}\pi\,Sec\,p\pi$ V. T. 3, N. 4.

14) $\int (Sec\,x - 1)^{p-\frac{1}{2}} Tg\,x\,dx = \pi\,Sec\,p\pi$ V. T. 3, N. 5.

15) $\int Sin(p\,Tg\,x) \frac{dx}{Cos\,x.\sqrt{Sin\,2x}} = \frac{1}{2}\sqrt{\frac{\pi}{p}} =$ 16) $\int Cos(p\,Tg\,x) \frac{dx}{Cos\,x.\sqrt{Sin\,2x}}$ V. T. 177, N. 1, 2.

F. Circ. Dir. irr. fract. à dén. bin. du prem. degré. TABLE 56. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{Sin^2 x\,dx}{\sqrt{3+Cos\,2x}} = F'\left(Sin\,\frac{\pi}{4}\right) - E'\left(Sin\,\frac{\pi}{4}\right)$ V. T. 8, N. 27.

2) $\int \frac{Cos^3 x\,dx}{\sqrt{3+Cos\,2x}} = \frac{1}{4}\sqrt{2}$ V. T. 8, N. 1.

3) $\int \frac{Cos^2 x\,dx}{\sqrt{3-Cos\,2x}} = F'\left(Sin\,\frac{\pi}{4}\right) - E'\left(Sin\,\frac{\pi}{4}\right)$ V. T. 8, N. 27.

4) $\int \frac{Sin^3 x\,dx}{\sqrt{3-Cos\,2x}} = \frac{1}{4}\sqrt{2}$ V. T. 8, N. 1.

5) $\int \frac{dx}{\sqrt{q+p\,Cos\,x}} = \frac{2}{\sqrt{p+q}} F\left(\frac{\pi}{4}, \sqrt{\frac{2p}{p+q}}\right)$ (VIII, 328).

6) $\int \frac{dx}{\sqrt{q-p\,Cos\,x}} = \frac{2}{\sqrt{p+q}} \left\{F'\left(\sqrt{\frac{2p}{p+q}}\right) - F\left(\frac{\pi}{4}, \sqrt{\frac{2p}{p+q}}\right)\right\}$ (VIII, 328).

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7) $\int \frac{Cos\, x\, dx}{\sqrt{q+p\, Cos\, x}} = \frac{2}{p\sqrt{p+q}} \left\{(p+q) E\left(\frac{\pi}{4}, \sqrt{\frac{2p}{p+q}}\right) - q F\left(\frac{\pi}{4}, \sqrt{\frac{2p}{p+q}}\right)\right\}$ (VIII, 328).

8) $\int \frac{Cos\, x\, dx}{\sqrt{q-p\, Cos\, x}} = \frac{2q}{p\sqrt{p+q}} \left\{F'\left(\sqrt{\frac{2p}{p+q}}\right) - F\left(\frac{\pi}{4}, \sqrt{\frac{2p}{p+q}}\right)\right\} - \frac{2}{p}\sqrt{p+q}.\left\{E'\left(\sqrt{\frac{2p}{p+q}}\right) - E\left(\frac{\pi}{4}, \sqrt{\frac{2p}{p+q}}\right)\right\}$ (VIII, 329). Dans 5) à 8) on a $q > p > 0$.

9) $\int \frac{Tg^{p-\frac{1}{2}} x\, dx}{(Sin\, x + Cos\, x)^2} = \frac{1-2p}{2} \pi\, Sec\, p\pi$ V. T. 21, N. 1.

10) $\int \frac{Sin\, x\, dx}{(Sec\, x - 1)^{p+\frac{1}{2}}} = \frac{1+2p}{2} \pi\, Sec\, p\pi$ V. T. 3, N. 4.

11) $\int \frac{Tg\, x\, dx}{(Sec\, x - 1)^{p-\frac{1}{2}}} = \pi\, Sec\, p\pi$ V. T. 3, N. 5.

F. Circ. Dir. irrat. fract. à dén. $\sqrt{1-p^2 Sin^2 x}$ $[p^2 < 1]$. TABLE 57. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{dx}{\sqrt{1-p^2 Sin^2 x}} = F'(p)$ M, D. 16, 28. 2) $\int \frac{Sin\, x\, dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{2p}\, l\, \frac{1+p}{1-p}$ (M, D. 16, 28).

3) $\int \frac{Cos\, x\, dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{p} Arcsin\, p$ (M, D. 16, 28).

4) $\int \frac{Cos\, 2x\, dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{p^2} \{2 E'(p) - (2-p^2) F'(p)\}$ (VIII, 254).

5) $\int \frac{Sin^2 x\, dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{p^2} \{F'(p) - E'(p)\}$ (VIII, 254).

6) $\int \frac{Sin\, x . Cos\, x\, dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{p^2} \{1 - \sqrt{1-p^2}\}$ (M, D. 16, 28).

7) $\int \frac{Cos^2 x\, dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{p^2} \{E'(p) - (1-p^2) F'(p)\}$ (VIII, 254).

8) $\int \frac{Sin^3 x\, dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{2p^2} \left\{-1 + \frac{1}{2p}(1+p^2)\, l\, \frac{1+p}{1-p}\right\}$ (M, D. 16, 28).

9) $\int \frac{Sin^2 x . Cos\, x\, dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{2p^2} \left\{-\sqrt{1-p^2} + \frac{1}{p} Arcsin\, p\right\}$ (M, D. 16, 28).

10) $\int \frac{Sin\, x . Cos^2 x\, dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{2p^2} \left\{1 - \frac{1}{2p}(1-p^2)\, l\, \frac{1+p}{1-p}\right\}$ (M, D. 16, 28).

11) $\int \frac{Cos^3 x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{2p^2}\left\{\sqrt{1-p^2} - \frac{1}{p}(1-2p^2) Arcsin p\right\}$ (M, D. 16, 28).

12) $\int \frac{Sin^4 x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{3p^4}\{(2+p^2)F'(p) - 2(1+p^2)E'(p)\}$ (VIII, 254).

13) $\int \frac{Sin^3 x . Cos x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{3p^4}\{2-(2+p^2)\sqrt{1-p^2}\}$ (M, D. 16, 28).

14) $\int \frac{Sin^2 x . Cos^2 x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{3p^4}\{(2-p^2)E'(p) - 2(1-p^2)F'(p)\}$ (VIII, 254).

15) $\int \frac{Sin x . Cos^3 x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{3p^4}\{-2+3p^2+2\sqrt{1-p^2}^3\}$ (M, D. 16, 28).

16) $\int \frac{Cos^4 x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{3p^4}\{2(2p^2-1)E'(p) + (2-3p^2)(1-p^2)F'(p)\}$ (VIII, 254).

17) $\int \frac{Sin^5 x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{8p^4}\left\{-3(1+p^2) + \frac{1}{2p}(3+2p^2+3p^4)\, l\frac{1+p}{1-p}\right\}$.

18) $\int \frac{Sin^4 x . Cos x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{8p^4}\left\{-(3+2p^2)\sqrt{1-p^2} + \frac{3}{p} Arcsin p\right\}$.

19) $\int \frac{Sin^3 x . Cos^2 x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{8p^4}\left\{3-p^2 - \frac{1}{2p}(3+p^2)(1-p^2)\, l\frac{1+p}{1-p}\right\}$.

20) $\int \frac{Sin^2 x . Cos^3 x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{8p^4}\left\{(3-2p^2)\sqrt{1-p^2} - \frac{1}{p}(3-4p^2) Arcsin p\right\}$.

21) $\int \frac{Sin x . Cos^4 x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{8p^4}\left\{5p^2-3+\frac{3}{2p}(1-p^2)^2\, l\frac{1+p}{1-p}\right\}$.

22) $\int \frac{Cos^5 x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{8p^4}\left\{-3(1-2p^2)\sqrt{1-p^2} + \frac{1}{p}(3-8p^2+8p^4) Arcsin p\right\}$.

23) $\int \frac{Sin^6 x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{15p^6}\{(8+3p^2+4p^4)F'(p) - (8+7p^2+8p^4)E'(p)\}$

24) $\int \frac{Sin^5 x . Cos x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{15p^6}\{8-(8+4p^2+3p^4)\sqrt{1-p^2}\}$.

25) $\int \frac{Sin^4 x . Cos^2 x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{15p^6}\{(8-3p^2-2p^4)E'(p) - (8+p^2)(1-p^2)F'(p)\}$.

26) $\int \frac{Sin^3 x . Cos^3 x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{2}{15p^6}\{-4+5p^2+(4+p^2)\sqrt{1-p^2}^3\}$.

27) $\int \frac{Sin^2 x . Cos^4 x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{15p^6}\{(8-9p^2)(1-p^2)F'(p) - (8-13p^2+3p^4)E'(p)\}$.

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F. Circ. Dir. irrat. fract. à dén. $\sqrt{1-p^2 Sin^2 x}$ $[p^2<1]$. TABLE 57, suite. Lim. 0 et $\frac{\pi}{2}$.

28) $\int \frac{Sin\,x \,.\, Cos^5 x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{15p^6}\left\{8 - 20p^2 + 15p^4 - 8\sqrt{1-p^2}^5\right\}.$

29) $\int \frac{Cos^6 x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{15p^6}\left\{(8-23p^2+23p^4)E'(p) - (8-19p^2+15p^4)(1-p^2)F'(p)\right\}.$

30) $\int \frac{Sin^7 x \,.\, Cos\,x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{35p^8}\left\{16 - (16+8p^2+6p^4+5p^6)\sqrt{1-p^2}\right\}.$

31) $\int \frac{Sin^5 x \,.\, Cos^3 x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{2}{105p^8}\left\{-4(6-7p^2)+(24+8p^2+3p^4)\sqrt{1-p^2}^3\right\}.$

32) $\int \frac{Sin^3 x \,.\, Cos^5 x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{2}{105p^8}\left\{24-56p^2+35p^4-4(6+p^2)\sqrt{1-p^2}^5\right\}.$

33) $\int \frac{Sin\,x \,.\, Cos^7 x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{35p^8}\left\{-16+56p^2-70p^4+35p^6+16\sqrt{1-p^2}^7\right\}.$

Sur N. 17) à 33) voyez M, D. 16, 28.

F. Circ. Dir. irrat. fract. à dén. $\sqrt{1-p^2 Sin^2 x}^3$ $[p^2<1]$. TABLE 58. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{1-p^2}E'(p)$ (VIII, 327). 2) $\int \frac{Sin\,x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{1-p^2}$ (M, D. 16, 28).

3) $\int \frac{Cos\,x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{\sqrt{1-p^2}}$ (M, D. 16, 28).

4) $\int \frac{Cos\,2x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{(1-p^2)p^2}\left\{2(1-p^2)F'(p) - (2-p^2)E'(p)\right\}$ V. T. 58, N. 5, 7.

5) $\int \frac{Sin^2 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{(1-p^2)p^2}\left\{E'(p) - (1-p^2)F'(p)\right\}$ (VIII, 327).

6) $\int \frac{Sin\,x \,.\, Cos\,x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{p^2}\left\{-1+\frac{1}{\sqrt{1-p^2}}\right\}$ (M, D. 16, 28).

7) $\int \frac{Cos^2 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{p^2}\left\{F'(p) - E'(p)\right\}$ (VIII, 328).

8) $\int \frac{Sin^3 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{(1-p^2)p^2}\left\{1 - \frac{1-p^2}{2p}\,l\frac{1+p}{1-p}\right\}.$

9) $\int \frac{Sin^2 x \,.\, Cos\,x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{(1-p^2)p^2}\left\{\sqrt{1-p^2} - \frac{1}{p}(1-p^2)\,Arcsin\,p\right\}.$

10) $\int \frac{Sin\,x \,.\, Cos^2 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{p^2}\left\{-1+\frac{1}{2p}\,l\frac{1+p}{1-p}\right\}.$

11) $\int \frac{Cos^3 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{p^2}\left\{-\sqrt{1-p^2}+\frac{1}{p}Arcsin\,p\right\}$.

12) $\int \frac{Sin^4 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{(1-p^2)p^4}\{(2-p^2)E'(p)-2(1-p^2)F'(p)\}$.

13) $\int \frac{Sin^3 x\,.\,Cos\,x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{p^4}\left\{-2+\frac{2-p^2}{\sqrt{1-p^2}}\right\}$.

14) $\int \frac{Sin^2 x\,.\,Cos^2 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{p^4}\{(2-p^2)F'(p)-2E'(p)\}$.

15) $\int \frac{Sin\,x\,.\,Cos^3 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{p^4}\{2-p^2-2\sqrt{1-p^2}\}$.

16) $\int \frac{Cos^4 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{p^4}\{(2-p^2)E'(p)-2(1-p^2)F'(p)\}$.

17) $\int \frac{Sin^5 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{2(1-p^2)p^4}\left\{3-p^2-\frac{1}{2p}(3+p^2)(1-p^2)\,l\frac{1+p}{1-p}\right\}$.

18) $\int \frac{Sin^4 x\,.\,Cos\,x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{2(1-p^2)p^4}\left\{(3-p^2)\sqrt{1-p^2}-\frac{3}{p}(1-p^2)Arcsin\,p\right\}$.

19) $\int \frac{Sin^3 x\,.\,Cos^2 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{2p^4}\left\{-3+\frac{1}{2p}(3-p^2)\,l\frac{1+p}{1-p}\right\}$.

20) $\int \frac{Sin^2 x\,.\,Cos^3 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{2p^4}\left\{-3\sqrt{1-p^2}+\frac{1}{p}(3-2p^2)Arcsin\,p\right\}$.

21) $\int \frac{Sin\,x\,.\,Cos^4 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{2p^4}\left\{3-2p^2-\frac{1}{2p}(1-p^2)\,l\frac{1+p}{1-p}\right\}$.

22) $\int \frac{Cos^5 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{2p^4}\left\{(3-2p^2)\sqrt{1-p^2}-\frac{1}{p}(3-4p^2)Arcsin\,p\right\}$.

23) $\int \frac{Sin^6 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{3(1-p^2)p^6}\{(8-3p^2-2p^4)E'(p)-(8+p^2)(1-p^2)F'(p)\}$.

24) $\int \frac{Sin^5 x\,.\,Cos\,x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{3p^6}\left\{-8+\frac{8-4p^2-p^4}{\sqrt{1-p^2}}\right\}$.

25) $\int \frac{Sin^4 x\,.\,Cos^2 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{3p^6}\{(8-5p^2)F'(p)-(8-p^2)E'(p)\}$.

26) $\int \frac{Sin^3 x\,.\,Cos^3 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{2}{3p^6}\{4-3p^2-(4-p^2)\sqrt{1-p^2}\}$.

27) $\int \frac{Sin^2 x\,.\,Cos^4 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{3p^6}\{(8-7p^2)E'(p)-(8-3p^2)(1-p^2)F'(p)\}$.

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F. Circ. Dir. irrat. fract. à dén. $\sqrt{1-p^2 Sin^2 x}^3$ $[p^2<1]$. TABLE 58, suite. Lim. 0 et $\frac{\pi}{2}$.

28) $\int \frac{Sin\, x \,.\, Cos^5 x\, dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{3p^6}\{-8+12p^2-3p^4+8\sqrt{1-p^2}^3\}.$

29) $\int \frac{Cos^6 x\, dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{3p^6}\{(8-9p^2)(1-p^2)F'(p)-(8-13p^2+3p^4)E'(p)\}.$

30) $\int \frac{Sin^7 x \,.\, Cos\, x\, dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{5p^8}\left\{-16+\frac{16-8p^2-2p^4-p^6}{\sqrt{1-p^2}}\right\}.$

31) $\int \frac{Sin^3 x \,.\, Cos^3 x\, dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{2}{15p^8}\{4(6-5p^2)-(24-8p^2-p^4)\sqrt{1-p^2}\}.$

32) $\int \frac{Sin^3 x \,.\, Cos^5 x\, dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{2}{15p^8}\{-24+40p^2-15p^4+4(6-p^2)\sqrt{1-p^2}^3\}.$

33) $\int \frac{Sin\, x \,.\, Cos^7 x\, dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{5p^8}\{16-40p^2+30p^4-5p^6-8\sqrt{1-p^2}^5\}.$

Sur N. 8) à 33) voyez M, D. 16, 28.

F. Circ. Dir. irrat. fract. à dén. $\sqrt{1-p^2 Sin^2 x}^5$ $[p^2<1]$. TABLE 59. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3(1-p^2)^2}\{2(2-p^2)E'(p)-(1-p^2)F'(p)\}$ (M, D. 16, 28).

2) $\int \frac{Sin\, x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{3-p^2}{3(1-p^2)^2}$ (M, D. 16, 28).

3) $\int \frac{Cos\, x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{3-2p^2}{3\sqrt{1-p^2}^3}$ (M, D. 16, 28).

4) $\int \frac{Cos\, 2x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3(1-p^2)^2 p^2}\{(2-p^2)(1-p^2)F'(p)-2(1-p^2+p^4)E'(p)\}$ V. T. 59, N. 5, 7.

5) $\int \frac{Sin^2 x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3(1-p^2)^2 p^2}\{(1+p^2)E'(p)-(1-p^2)F'(p)\}.$

6) $\int \frac{Sin\, x \,.\, Cos\, x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3p^2}\left\{-1+\frac{1}{\sqrt{1-p^2}^3}\right\}.$

7) $\int \frac{Cos^2 x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3(1-p^2)p^2}\{(1-p^2)F'(p)-(1-2p^2)E'(p)\}.$

8) $\int \frac{Sin^3 x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{2}{3(1-p^2)^2}.$

9) $\int \frac{Sin^2 x \,.\, Cos\, x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3\sqrt{1-p^2}^3}.$

10) $\int \frac{Sin\, x \,.\, Cos^2 x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3(1-p^2)}.$

11) $\int \frac{Cos^3 x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{2}{3\sqrt{1-p^2}}.$

12) $\int \frac{Sin^4 x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3(1-p^2)^2 p^4}\{(2-3p^2)(1-p^2)F'(p)-2(1-2p^2)E'(p)\}.$

13) $\int \frac{Sin^3 x . Cos x dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3p^4}\left\{2 - \frac{2-3p^2}{\sqrt{1-p^2}^3}\right\}$.

14) $\int \frac{Sin^2 x . Cos^2 x dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3(1-p^2)p^4}\{(2-p^2)E'(p) - 2(1-p^2)F'(p)\}$.

15) $\int \frac{Sin x . Cos^3 x dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3p^4}\left\{-2-p^2+\frac{2}{\sqrt{1-p^2}}\right\}$.

16) $\int \frac{Cos^4 x dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3p^4}\{(2+p^2)F'(p) - 2(1+p^2)E'(p)\}$.

17) $\int \frac{Sin^5 x dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3(1-p^2)^2 p^4}\left\{-3+5p^2+\frac{3}{p}(1-p^2)^2 \, l\frac{1+p}{1-p}\right\}$.

18) $\int \frac{Sin^4 x . Cos x dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3(1-p^2)^2 p^4}\left\{-(3-4p^2)\sqrt{1-p^2}+\frac{3}{p}(1-p^2)^2 \, Arcsin\, p\right\}$.

19) $\int \frac{Sin^3 x . Cos^2 x dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3(1-p^2)p^4}\left\{3-2p^2-\frac{3}{p}(1-p^2) \, l\frac{1+p}{1-p}\right\}$.

20) $\int \frac{Sin^2 x . Cos^3 x dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3(1-p^2)p^4}\left\{(3-p^2)\sqrt{1-p^2}-\frac{3}{p}(1-p^2) \, Arcsin\, p\right\}$.

21) $\int \frac{Sin x . Cos^4 x dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3p^4}\left\{-3-p^2+\frac{3}{p} \, l\frac{1+p}{1-p}\right\}$.

22) $\int \frac{Cos^5 x dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3p^4}\left\{-(3+2p^2)\sqrt{1-p^2}+\frac{3}{p} \, Arcsin\, p\right\}$.

23) $\int \frac{Sin^6 x dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3(1-p^2)^2 p^6}\{(8-9p^2)(1-p^2)F'(p) - (8-13p^2+3p^4)E'(p)\}$.

24) $\int \frac{Sin^5 x . Cos x dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3p^6}\left\{8 - \frac{8-12p^2+3p^4}{\sqrt{1-p^2}^3}\right\}$.

25) $\int \frac{Sin^4 x . Cos^2 x dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3(1-p^2)p^6}\{(8-7p^2)E'(p) - (8-3p^2)(1-p^2)F'(p)\}$.

26) $\int \frac{Sin^3 x . Cos^3 x dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{2}{3p^6}\left\{-4+p^2+\frac{4-3p^2}{\sqrt{1-p^2}}\right\}$.

27) $\int \frac{Sin^2 x . Cos^4 x dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3p^6}\{(8-5p^2)F'(p) - (8-p^2)E'(p)\}$.

28) $\int \frac{Sin x . Cos^5 x dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3p^6}\{8-4p^2-p^4-8\sqrt{1-p^2}\}$.

29) $\int \frac{Cos^6 x dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3p^6}\{(8-3p^2+2p^4)E'(p) - (8+p^2)(1-p^2)F'(p)\}$.

30) $\int \frac{Sin^7 x \,.\, Cos\, x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3p^8}\left\{16 - \frac{16-24p^2+6p^4+p^6}{\sqrt{1-p^2}^3}\right\}.$

31) $\int \frac{Sin^5 x \,.\, Cos^3 x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{2}{3p^8}\left\{-4(2-p^2) + \frac{8-8p^2+p^4}{\sqrt{1-p^2}}\right\}.$

32) $\int \frac{Sin^3 x \,.\, Cos^5 x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{2}{3p^8}\left\{8-8p^2+p^4-4(2-p^2)\sqrt{1-p^2}\right\}.$

33) $\int \frac{Sin\, x \,.\, Cos^7 x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3p^8}\left\{-16+24p^2-6p^4-p^6+16\sqrt{1-p^2}^3\right\}.$

Sur 5) à 33) voyez M, D. 16, 28.

F. Circ. Dir. irrat. fract. à autre dén. bin. TABLE 60. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{dx}{\sqrt{1+Sin^2 x}} = \frac{1}{2}\sqrt{2}\,.\,F'\left(Sin\frac{\pi}{4}\right)$ (VIII, 298).

2) $\int \frac{Sin^2 x\, dx}{\sqrt{1+Sin^2 x}} = \sqrt{2}\,.\,E'\left(Sin\frac{\pi}{4}\right) - \frac{1}{\sqrt{2}}F'\left(Sin\frac{\pi}{4}\right)$ (VIII, 321).

3) $\int \frac{Cos^2 x\, dx}{\sqrt{1+Sin^2 x}} = \sqrt{2}\,.\left\{F'\left(Sin\frac{\pi}{4}\right) - E'\left(Sin\frac{\pi}{4}\right)\right\}$ (VIII, 321).

4) $\int \frac{Sin^3 x\, dx}{\sqrt{1+Sin^2 x}} = \frac{1}{2}$ V. T. 8, N. 1.

5) $\int \frac{Sin\, x\, dx}{\sqrt{1+p^2 Sin^2 x}} = \frac{1}{p} Arctg\, p$ V. T. 12, N. 6*.

6) $\int \frac{Sin^3 x\, dx}{\sqrt{1+p^2 Sin^2 x}^3} = \frac{1}{p^2}\left\{Arctg\, p - \frac{p}{1+p^2}\right\}$ V. T. 60, N. 5.

7) $\int dx \sqrt{\frac{1-p^2 Sin^4 x}{1+Sin^2 x}} = \frac{a F'(a) + b F'(b)}{(a+b)^2} + \frac{a-b}{(a+b)^2}\left\{E'(a) - E'(b)\right\}$ $\left[2a^2 = \frac{(1-\sqrt{p})^2}{1+p},\ 2b^2 = \frac{(1+\sqrt{p})^2}{1+p}\right]$ V. T. 9, N. 12.

8) $\int \frac{Sin^4 x\, dx}{\sqrt{1-p^2 Sin^2 2x}} = \frac{3}{8p^2}\left\{E'(p) - F'(p)\right\} + \frac{1}{2}F'(p)$ $[p<1]$ V. T. 21, N. 31.

9) $\int \frac{Cos^2 x\, dx}{\sqrt{1-p^2 Cos^2 2x}} = \frac{1}{2}F'(p)$ (IV, 141*).

10) $\int \frac{dx}{p\, Sin^2 x + q\, Cos^2 x}\sqrt{1-p\, Sin^2 x - q\, Cos^2 x} = \frac{\pi}{2\sqrt{pq}} + F'\left(\sqrt{\frac{p-q}{1-q}}\right)\left\{\frac{1-p}{p\sqrt{1-q}} - \frac{1}{\sqrt{pq}} E\left(\sqrt{\frac{1-p}{1-q}}, Arcsin\left[\sqrt{\frac{q}{p}}\right]\right)\right\} + \frac{1}{\sqrt{pq}} F\left(\sqrt{\frac{1-p}{1-q}}, Arcsin\left[\sqrt{\frac{q}{p}}\right]\right)\left\{F'\left(\sqrt{\frac{p-q}{1-q}}\right) - E'\left(\sqrt{\frac{p-q}{1-q}}\right)\right\}$ $[0<q<p<1]$ (VIII, 308).

1) $\int \frac{1}{Sin\,x + Cos\,x} \frac{dx}{Cos\,x \,.\, Tg^{p+\frac{1}{2}}x} = \pi \, Sec\, p\pi$ V. T. 17, N. 10.

2) $\int \frac{Sin^{p-\frac{1}{2}}x}{Sin\,x + Cos\,x} \frac{dx}{Cos^{p+\frac{1}{2}}x} = \pi \, Sec\, p\pi$ V. T. 17, N. 10.

3) $\int \frac{1}{(Sin\,x + Cos\,x)^2} \frac{dx}{Tg^{p-\frac{1}{2}}x} = \frac{1-2p}{2} \pi . Sec\, p\pi$ V. T. 21, N. 1.

4) $\int \frac{1}{(Cosec\,x - 1)^{p-\frac{1}{2}}} \frac{dx}{Tg\,x} = \pi \, Sec\, p\pi$ V. T. 23, N. 10.

5) $\int \frac{Sin^{q+1}x}{(1-p^2 Sin^2 x)^{\frac{1}{2}(q+1)}} \frac{dx}{Cos^q x} = \frac{(1-p)^{-q} - (1+p)^{-q}}{4pq\sqrt{\pi}} \Gamma\left(\frac{q+2}{2}\right) \Gamma\left(\frac{1-q}{2}\right)$ V. T. 12, N. 32.

6) $\int \frac{Tg^{2q}x}{(1+Sec^2 x)^{p+\frac{1}{2}}} \frac{dx}{Cos^2 x} = 2^{q-p-1} \frac{\Gamma(q+\frac{1}{2})\Gamma(p-q)}{\Gamma(p+\frac{1}{2})}$ V. T. 23, N. 9.

7) $\int \frac{Sin\,x . Cos\,x}{1 - Sin^2\lambda . Sin^2 x} \frac{dx}{\sqrt{Cos^2\mu - Sin^2\lambda . Sin^2 x}} = \frac{1}{Sin^2\lambda . Sin\,\mu} \left\{ \frac{\pi}{2} - \mu - Arccos\left(\frac{Sin\,\mu}{Cos\,\lambda}\right)\right\}$ (IV, 130).

8) $\int \frac{Cos^2 x}{1 - Sin^2\lambda . Sin^2 x} \frac{dx}{\sqrt{Cos^2\mu - Sin^2\lambda . Sin^2 x}} = Sec\,\mu . F'\left(\frac{Sin\,\lambda}{Cos\,\mu}\right) - \frac{Cos\,\lambda}{Sin^2\lambda . Sin\,\mu} \left\{ F'\left(\frac{Sin\,\lambda}{Cos\,\mu}\right)\right.$

$\left. E\left(\frac{Sin\,\lambda}{Cos\,\mu}, \frac{\pi}{2} - \mu\right) - E'\left(\frac{Sin\,\lambda}{Cos\,\mu}\right) F\left(\frac{Sin\,\lambda}{Cos\,\mu}, \frac{\pi}{2} - \mu\right)\right\}$ (IV, 130).

9) $\int \frac{Cos^2 x}{1 + Cot^2\mu . Sin^2 x} \frac{dx}{\sqrt{1 - q^2 Sin^2 x}} = \frac{Tg\,\mu}{2\sqrt{Cos^2\mu + q^2 Sin^2\mu}} [\pi + 2F'(q) F\{\sqrt{1-q^2}, \mu\} -$

$- 2F'(q) E\{\sqrt{1-q^2}, \mu\} - 2E'(q) F\{\sqrt{1-q^2}, \mu\}]$ (IV, 130).

10) $\int \frac{Sin\,x\,dx}{\sqrt{(r^2 Sin^2 x + p^2 Cos^2 x)(r^2 Sin^2 x + q^2 Cos^2 x)}} = \frac{1}{r\sqrt{r^2 - p^2}} F\left(Arccos\frac{p}{r}, \sqrt{\frac{r^2 - q^2}{r^2 - p^2}}\right) [r > q > p]$

(IV, 130).

11) $\int \frac{dx}{\sqrt{Sin\,x . (l^2 Sin\,x + p^2 Cos\,x)(m^2 Sin\,x + q^2 Cos\,x)(n^2 Sin\,x + r^2 Cos\,x)}} = \frac{2}{q\sqrt{r^2 l^2 - p^2 n^2}}$

$F\left\{Arccos\left(\frac{pn}{rl}\right), \frac{r}{q}\sqrt{\frac{q^2 l^2 - p^2 m^2}{r^2 l^2 - p^2 n^2}}\right\} \left[\begin{matrix} ql > pm, \\ rl > pn \end{matrix}\right]$ V. T. 21, N. 17.

12) $\int \frac{dx}{\sqrt{Cos\,x . (l^2 Sin\,x + p^2 Cos\,x)(m^2 Sin\,x + q^2 Cos\,x)(n^2 Sin\,x + r^2 Cos\,x)}} = \frac{2}{m\sqrt{p^2 n^2 - r^2 l^2}}$

$F\left\{Arccos\left(\frac{pn}{rl}\right), \frac{n}{m}\sqrt{\frac{p^2 m^2 - q^2 l^2}{p^2 n^2 - r^2 l^2}}\right\} \left[\begin{matrix} pm > ql, \\ pn > rl \end{matrix}\right]$ V. T. 21, N. 17.

13) $\int \frac{dx}{\sqrt{\{1-(Cos^2\alpha - Sin^2\alpha . Cos^2\beta) Sin^2 x\} \{1-(Sin^2\beta - Tg^2\alpha . Cos^2\beta) Sin^2 x\}}} = \frac{Sin\beta}{Sin\alpha}$
$F'\left\{\sqrt{\left(1-\frac{Sin^2 2\beta}{Sin^2 2\alpha}\right)}\right\}$ (VIII, 426).

F. Circ. Dir. rat. entière monôme. TABLE 62. Lim. 0 et π.

1) $\int Sin ax . Sin bx dx = 0\ [a \gtrless b], = \frac{1}{2}\pi\ [a=b] =$ 2) $\int Cos ax . Cos bx dx$ (VIII, 332).

3) $\int Sin px . Sin ax dx = (-1)^{a-1} \frac{a Sin p\pi}{a^2-p^2}$ (IV, 131).

4) $\int Cos px . Cos ax dx = (-1)^{a-1} \frac{p Sin p\pi}{a^2-p^2}$ (IV, 131).

5) $\int Sin 2ax . Cot x dx = \pi =$ 6) $\int Sin\{(2a+1)x\} . Cosec x dx$ Cayley, C. & D. Math. J. V. 6, 136.

7) $\int Sin^q x . Sin qx dx = \frac{\pi}{2^q} Sin \frac{1}{2} q\pi$ (VIII, 533). 8) $\int Sin^q x . Cos qx dx = \frac{\pi}{2^q} Cos \frac{1}{2} q\pi$ (VIII, 533).

9) $\int Sin^q x . Sin px dx = \frac{\pi}{2^q} \frac{Sin \frac{1}{2}p\pi . \Gamma(q+1)}{\Gamma\left(\frac{p+q}{2}+1\right)\Gamma\left(\frac{q-p}{2}+1\right)}$ (VIII, 533).

10) $\int Sin^q x . Cos px dx = \frac{\pi}{2^q} \frac{Cos \frac{1}{2}p\pi . \Gamma(q+1)}{\Gamma\left(\frac{p+q}{2}+1\right)\Gamma\left(\frac{q-p}{2}+1\right)}$ (VIII, 533).

11) $\int Sin^{q-1} x . Cos\left\{p\left(\frac{\pi}{2}-x\right)\right\} dx = 2^{q-1} \frac{\Gamma\left(\frac{q-p}{2}\right)\Gamma\left(\frac{q+p}{2}\right)\Gamma(q)}{\Gamma(q-p)\Gamma(q+p)}$ V. T. 62, N. 9, 10.

12) $\int Cos px . Cos rx . Sin x dx = \frac{1}{2}\left\{\frac{1-(-1)^{1-r-p}}{1-(r+p)^2} + \frac{1-(-1)^{1+p-r}}{1+(r-p)^2}\right\}$.

13) $\int Cos px . Cos rx . Sin qx dx = \frac{1}{4}\left\{\frac{1-(-1)^{p+r+q}}{p+r+q} + \frac{1-(-1)^{q-p-r}}{q-p-r} + \frac{1-(-1)^{q+p-r}}{q+p-r} + \right.$
$\left. + \frac{1-(-1)^{q-p+r}}{q-p+r}\right\}$.

14) $\int Cos(p+p_1 x) . Cos(q+q_1 x) . Sin(r+r_1 x) dx = \frac{1}{4}\left\{\frac{1}{p_1+q_1+r_1}[Cos(p+q+r) - Cos\{(p+q+r) + \right.$
$+ (p_1+q_1+r_1)\pi\}] + \frac{1}{r_1-p_1-q_1}[Cos(r-p-q) - Cos\{(r-p-q)+(r_1-p_1-q_1)\pi\}] +$
$+ \frac{1}{p_1-q_1+r_1}[Cos(p-q+r) - Cos\{(p-q+r)+(p_1-q_1+r_1)\pi\}] + \frac{1}{r_1-p_1+q_1}$
$\left.[Cos(r-p+q) - Cos\{r-p+q+(r_1-p_1+q_1)\pi\}]\right\}$.

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15) $\int Cos(p+p_1 x).Cos(q+q_1 x).Cos(r+r_1 x)\,dx = -\frac{1}{4}\Big\{\frac{1-(-1)^{r_1+p_1-q_1}}{r_1+p_1-q_1} Sin(r+p-q)+$
$+\frac{1-(-1)^{p_1+q_1+r_1}}{p_1+q_1+r_1} Sin(p+q+r)+\frac{1-(-1)^{p_1-q_1-r_1}}{p_1-q_1-r_1} Sin(p-q-r)+$
$+\frac{1-(-1)^{q_1-p_1-r_1}}{q_1-p_1-r_1} Sin(q-p-r)\Big\}.$

16) $\int Cos\,px.Cos\,qx.Cos\,rx\,dx = \frac{\pi}{2}A$, où $A=0, 1, 2, 4$, selon que le nombre des dénominateurs nuls $p\pm q\pm r$ sera 0, 1, 2, 3. Sur 12) à 16) voyez Volpicelli, C. R. 54, 223.

F. Circ. Dir. rat. ent. Autre forme. TABLE 63. Lim. 0 et π.

1) $\int (1-2p\,Cos\,x+p^2)^a\,dx = \pi \sum_0^a \binom{a}{n}^2 p^{2n}$ (VIII, 482).

2) $\int (1-2p\,Cos\,x+p^2)^a\,Cos\,ax\,dx = (-1)^a p^a \pi$ (VIII, 483).

3) $\int (1-2p\,Cos\,x+p^2)^a\,Cos\,bx\,dx = \pi(-p)^b \frac{a^{b|-1}}{1^{b|1}} \sum_0^a \binom{a}{n} \frac{(a-b)^{n|-1}}{(b+1)^{n|1}} p^{2n}$ (VIII, 482).

4) $\int Cos(q\,Sin\,x)\,dx = \pi \sum_0^\infty \frac{(-q^2)^n}{(2^{n+1|2})^2}$ (IV, 133). 5) $\int Cos(q\,Cos\,x).Sin\,x\,dx = \frac{2}{q} Sin\,q$ (IV, 133).

6) $\int Cos(q\,Cos\,x).Sin^2 x\,dx = \frac{4}{q^3}(Sin\,q - q\,Cos\,q)$ (IV, 133).

7) $\int Sin(q\,Sin\,x).Sin\,2ax\,dx = 0$ (IV, 133).

8) $\int Sin(q\,Sin\,x).Sin\{(2a+1)x\}\,dx = \left(\frac{q}{2}\right)^{2a+1} \frac{\pi}{1^{2a+1|1}}\Big\{1+\sum_1^\infty (-1)^n \frac{(\frac{1}{2}q)^{2n}}{1^{n|1}(2a+2)^{n|1}}\Big\}$ (IV, 133).

9) $\int Cos(q\,Sin\,x).Cos\,2ax\,dx = \left(\frac{q}{2}\right)^{2a} \frac{\pi}{1^{2a|1}}\Big\{1+\sum_1^\infty (-1)^n \frac{(\frac{1}{2}q)^{2n}}{1^{n|1}(2a+1)^{n|1}}\Big\}$ (IV, 133).

10) $\int Cos(q\,Sin\,x).Cos\{(2a+1)x\}\,dx = 0$ (IV, 133).

11) $\int Cos\{a(x-q\,Sin\,x)\}\,dx = \frac{\pi}{1^{a|1}}\left(\frac{aq}{2}\right)^a \sum_0^\infty (-1)^n \frac{(\frac{1}{2}aq)^{2n}}{1^{n|1}(1+a)^{n|1}}$ (IV, 134).

12) $\int (1-q\,Cos\,x)^2\,Cos\{a(x-q\,Sin\,x)\}\,dx = \frac{-\pi}{a.1^{a|1}}\left(\frac{aq}{2}\right)^a \sum_0^\infty (-1)^n \left(\frac{1}{2}aq\right)^{2n} \frac{a+2n}{1^{n|1}a^{n+1|1}}$ (IV, 134).

1) $\int \frac{Sin\, 2\, a\, x\, dx}{Sin\, x} = 0.$

2) $\int \frac{Sin\, \{(2\, a + 1)\, x\}\, dx}{Sin\, x} = \pi.$

3) $\int \frac{Sin\, a\, x . Cos\, b\, x\, dx}{Sin\, x} = 0\ [a < b],\ = \pi\ [a > b].$

4) $\int \frac{Sin\, 2\, a\, x . Cos\{(2\, a - 2\, b + 1)\, x\}\, dx}{Sin\, x} = 0 =$ 5) $\int \frac{Sin\{(2\, a + 1)\, x\} . Cos\{(2\, a - 2\, b + 1)\, x\}\, dx}{Sin\, x}.$

6) $\int \frac{Sin\, 2\, a\, x . Cos\{(2\, a - 2\, b)\, x\}\, dx}{Sin\, x} = \pi =$ 7) $\int \frac{Sin\{(2\, a + 1)\, x\} . Cos\{(2\, a - 2\, b)\, x\}\, dx}{Sin\, x}.$

8) $\int \frac{Cos\, a\, x . Sin\{(a + 2\, b)\, x\}\, dx}{Sin\, x} = 0.$

9) $\int \frac{Cos\, a\, x . Sin\{(a + 2\, b - 1)\, x\}\, dx}{Sin\, x} = \pi.$

10) $\int \frac{Cos\, a\, x . Sin\{(a - b)\, x\}\, dx}{Sin\, x} = 0 =$ 11) $\int \frac{Sin\, a\, x . Cos\{(a + b)\, x\}\, dx}{Sin\, x}.$

Sur 1) à 11) voyez Vernier, Ann. Math. T. 15, 165.

12) $\int \frac{Cos\, a\, x\, dx}{1 + p\, Cos\, x} = \frac{\pi}{\sqrt{1 - p^2}} \left\{ \frac{\sqrt{1 - p^2} - 1}{p} \right\}^a$ (IV, 135).

13) $\int \frac{Sin^a\, x\, dx}{p + q\, Cos\, x} = \frac{2\sqrt{\pi}}{a\, (p^2 - q^2)^{\frac{a+1}{2}}} \frac{\Gamma\left(\frac{a+1}{2}\right)}{\Gamma\left(\frac{a}{2}\right)}$ (IV, 135).

14) $\int \frac{dx}{(p + q\, Cos\, x)^{a+1}} = \frac{1^{a/2}}{1^{a/1}} \frac{\pi}{\sqrt{p^2 - q^2}} \sum_0^\infty \left(-\frac{1}{2}\right)^n \frac{(n+1)^{n/1}}{(2\, a - 1)^{n/-2}} \binom{a}{2\, n} \frac{p^{a - 2n}}{(p^2 - q^2)^{a - n}}$ (VIII, 571).

15) $\int \frac{Sin^a\, x\, dx}{(p + q\, Cos\, x)^{a+1}} = \frac{1^{a-1/1}}{2^{a-2}\, (p^2 - q^2)^{\frac{a+1}{2}} \left\{\Gamma\left(\frac{a}{2}\right)\right\}^2} \frac{\pi}{a}$ (IV, 135).

16) $\int \frac{Cos^a\, x\, dx}{(p + q\, Cos\, x)^{a+1}} = \frac{1^{a/2}}{1^{a/1}} \frac{(-1)^a\, \pi}{\sqrt{p^2 - q^2}} \sum_0^\infty \frac{(n+1)^{n/1}}{(2\, a - 1)^{n/-2}} \binom{a}{2\, n} \frac{1}{2^n} \frac{q^{a - 2n}}{(p^2 - q^2)^{a - n}}$ (VIII, 571).

Dans 13) à 16) on a $p > q$.

17) $\int \frac{Sin^{2a-1}\, x\, dx}{(p + q\, i\, Cos\, x)^{2a+1}} = \frac{p}{\Gamma\left(\frac{a+1}{2}\right)} \frac{1^{a-1/1}\sqrt{\pi}}{(p^2 + q^2)^{a+1}}$ Cauchy, C. R. 1848, 356.

18) $\int \frac{Sin\, x\, dx}{p^2 + q^2\, Cos^2\, x} = \frac{2}{p\, q} Arctg \frac{q}{p}$ (VIII, 543).

19) $\int \frac{Sin\, \{a\, (x - q\, Sin\, x)\}}{(1 - q\, Cos\, x)^2}\, Sin\, x\, dx = \frac{\pi}{2} \frac{a^2}{1^{a/1}} \left(\frac{a\, q}{2}\right)^{a-1} \sum_0^\infty \left(\frac{a\, q}{2}\right)^{2n} \frac{(-1)^n}{1^{n/1}\, (1 + a)^{n/1}}$ (IV, 184).

20) $\int \frac{Cos\, \{a\, (x - q\, Sin\, x)\}}{(1 - q\, Cos\, x)^2}\, (q - Cos\, x)\, dx = \frac{\pi\, a^2}{1^{a/1}} \left(\frac{a\, q}{2}\right)^{a-1} \sum_0^\infty \left(\frac{a\, q}{2}\right)^{2n} (-1)^n \frac{a + 2\, n}{1^{n/1}\, a^{n+1/1}}$ (IV, 184).

1) $\int \frac{dx}{1-2p\,Cos\,x+p^2} = \frac{\pi}{1-p^2}\,[p^2<1], = \frac{\pi}{p^2-1}\,[p^2>1]$ (VIII, 207).

2) $\int \frac{Cos\,x\,dx}{1-2p\,Cos\,x+p^2} = \frac{p\pi}{1-p^2}\,[p^2<1], = \frac{\pi}{p(p^2-1)}\,[p^2>1]$ (VIII, 207).

3) $\int \frac{Cos\,ax\,dx}{1-2p\,Cos\,x+p^2} = \frac{\pi p^a}{1-p^2}\,[p^2<1], = \frac{\pi p^{-a}}{p^2-1}\,[p^2>1]$ (VIII, 276).

4) $\int \frac{Sin\,ax\,.\,Sin\,x\,dx}{1-2p\,Cos\,x+p^2} = \frac{1}{2}\pi p^{a-1}\,[p^2<1], = \frac{\pi}{2}\,\frac{1}{p^{a+1}}\,[p^2>1]$ (VIII, 276).

5) $\int \frac{Cos\,ax\,.\,Cos\,x\,dx}{1-2p\,Cos\,x+p^2} = \frac{\pi}{2}\,\frac{1+p^2}{1-p^2}\,p^{a-1}\,[p^2<1], = \frac{\pi}{2p^{a+1}}\,\frac{p^2+1}{p^2-1}\,[p^2>1]$ (VIII, 276).

6) $\int \frac{Sin\,2ax\,.\,Sin\,x\,dx}{1-2p\,Cos\,2x+p^2} = 0 =$ 7) $\int \frac{Sin\,\{(2a-1)x\}\,.\,Sin\,2x\,dx}{1-2p\,Cos\,2x+p^2}$ (IV, 137, 138) $[p^2 \lesseqgtr 1]$.

8) $\int \frac{Sin\{(2a-1)x\}\,.\,Sin\,x\,dx}{1-2p\,Cos\,2x+p^2} = \frac{\pi}{2}\,\frac{p^{a-1}}{1+p}\,[p^2<1], = \frac{\pi}{2p^a}\,\frac{1}{1+p}\,[p^2>1]$ (IV, 137).

9) $\int \frac{Cos\,\{(2a-1)x\}\,dx}{1-2p\,Cos\,2x+p^2} = 0 =$ 10) $\int \frac{Cos\,2ax\,.\,Cos\,x\,dx}{1-2p\,Cos\,2x+p^2}$ (IV, 138) $[p^2 \lesseqgtr 1]$.

11) $\int \frac{Cos\{(2a-1)x\}\,.\,Cos\,x\,dx}{1-2p\,Cos\,2x+p^2} = \frac{\pi}{2}\,\frac{p^{a-1}}{1-p}\,[p^2<1], = \frac{\pi}{2p^a}\,\frac{1}{p-1}\,[p^2>1]$ (IV, 138).

12) $\int \frac{Cos\{(2a-1)x\}\,.\,Cos\,2x\,dx}{1-2p\,Cos\,2x+p^2} = 0\,[p^2 \lesseqgtr 1]$ (IV, 138).

13) $\int \frac{Sin\,ax - p\,Sin\,\{(a-1)x\}}{1-2p\,Cos\,x+p^2}\,Sin\,bx\,dx = \frac{\pi}{2}(p^{b-a}-1) =$ 14) $\int \frac{Cos\,ax - p\,Cos\,\{(a-1)x\}}{1-2p\,Cos\,x+p^2}\,Cos\,bx\,dx$ (VIII, 276*).

15) $\int \frac{Cos^s\,rx\,.\,Cos^{s_1}\,r_1x \ldots Cos\,\{(sr+s_1r_1+\ldots)x\}\,dx}{1-2p\,Cos\,x+p^2} = \frac{\pi}{1-p^2}\left(\frac{1+p^{2r}}{2}\right)^s \left(\frac{1+p^{2r_1}}{2}\right)^{s_1} \ldots$

16) $\int \frac{Cos^s\,rx\,.\,Cos^{s_1}\,r_1x \ldots Sin\,\{(sr+s_1r_1+\ldots)x\}\,dx}{1-2p\,Cos\,x+p^2} = \frac{\pi}{2p}\left(\frac{1+p^{2r}}{2}\right)^s \left(\frac{1+p^{2r_1}}{2}\right)^{s_1} \ldots - \frac{\pi}{2^{s+s_1+\ldots+1}p}$.

17) $\int \frac{Sin^s\,rx\,.\,Sin^{s_1}\,r_1x \ldots Cos\,\{(s+s_1+\ldots)\frac{1}{2}\pi - (sr+s_1r_1+\ldots)x\}\,dx}{1-2p\,Cos\,x+p^2} = \frac{\pi}{1-p^2}\left(\frac{1-p^{2r}}{2}\right)^s \left(\frac{1-p^{2r_1}}{2}\right)^{s_1} \ldots$

18) $\int \frac{Sin^s\,rx\,.\,Sin^{s_1}\,r_1x \ldots Sin\{(s+s_1+\ldots)\frac{1}{2}\pi - (sr+s_1r_1+\ldots)x\}\,dx}{1-2p\,Cos\,x+p^2} = \frac{\pi}{2^{s+s_1+\ldots+1}p} - \frac{\pi}{2p}\left(\frac{1-p^{2r}}{2}\right)^s \left(\frac{1-p^{2r_1}}{2}\right)^{s_1} \ldots$

19) $\int \frac{Cos^s rx . Cos^{s_1} r_1 x \dots Sin^t ux . Sin^{t_1} u_1 x \dots Cos\left\{(t+t_1+\dots)\frac{1}{2}\pi - (sr+s_1 r_1+\dots+tu+t_1 u_1+\dots)x\right\} dx}{1-2p\, Cos\, x+p^2} =$

$= \frac{\pi}{1-p^2}\left(\frac{1+p^{2r}}{2}\right)^s \left(\frac{1+p^{2r_1}}{2}\right)^{s_1} \dots \left(\frac{1-p^{2u}}{2}\right)^t \left(\frac{1-p^{2u_1}}{2}\right)^{t_1} \dots$

20) $\int \frac{Cos^s rx . Cos^{s_1} r_1 x \dots Sin^t ux . Sin^{t_1} u_1 x \dots Sin\left\{(t+t_1+\dots)\frac{1}{2}\pi - (sr+s_1 r_1+\dots+tu+t_1 u_1+\dots)x\right\} dx}{1-2p\, Cos\, x+p^2} =$

$= \frac{\pi}{2^{s+s_1+\dots+t+t_1+\dots+1} p} - \frac{\pi}{2p}\left(\frac{1+p^{2r}}{2}\right)^s \left(\frac{1+p^{2r_1}}{2}\right)^{s_1} \dots \left(\frac{1-p^{2u}}{2}\right)^t \left(\frac{1-p^{2u_1}}{2}\right)^{t_1} \dots$

Sur 15) à 20) voyez Svanberg, N. A. Upsal. T. 10, 231.

21) $\int \frac{Cos\, x . Sin\, 2ax\, dx}{1+(p+q\, Sin\, x)^2} = -\frac{\pi}{q} Sin\left\{2a\, Arctg\left(\sqrt{\frac{s}{2}}\right)\right\} . Tg^{2a}\left\{\frac{1}{2} Arccos\left(\sqrt{\frac{s}{2p^2}}\right)\right\}$

22) $\int \frac{Cos\, x . Cos\{(2a+1)x\} dx}{1+(p+q\, Sin\, x)^2} = \frac{\pi}{q} Cos\left\{(2a+1) Arctg\left(\sqrt{\frac{s}{2}}\right)\right\} . Tg^{2a+1}\left\{\frac{1}{2} Arccos\left(\sqrt{\frac{s}{2p^2}}\right)\right\}$

Dans 21) et 22) on a $s = -(1+q^2-p^2)+\sqrt{\{(1+q^2-p^2)^2+4p^2\}}$ (IV, 138).

F. Circ. Dir. rat. fract. à dén. trin. comp. TABLE 66. Lim. 0 et ∞.

1) $\int \frac{1}{1-2p\, Cos\, x+p^2} \frac{dx}{Cos\, x} = \infty$ $[p^2 \lessgtr 1]$ (VIII, 562).

2) $\int \frac{dx}{(1-2p\, Cos\, x+p^2)^{a+1}} = \frac{\pi}{(1-p^2)^{2a+1}} \sum_0^a \binom{a}{n}^2 p^{2n}$ $[p^2<1]$, $= \frac{\pi}{(p^2-1)^{2a+1}} \sum_0^a \binom{a}{n}^2 p^{2n}$ $[p^2>1]$ (VIII, 482).

3) $\int \frac{Cos\, ax\, dx}{(1-2p\, Cos\, x+p^2)^{a+1}} = \frac{\pi p^a}{(1-p^2)^{2a+1}} \frac{(a+1)^{a/1}}{1^{a/1}}$ $[p^2<1]$, $= \frac{\pi p^a}{(p^2-1)^{2a+1}} \frac{(a+1)^{a/1}}{1^{a/1}}$ $[p^2>1]$ (VIII, 483).

4) $\int \frac{Sin^{2a} x\, dx}{(1-2p\, Cos\, x+p^2)^a} = \frac{1^{a/2}}{2^{a/2}} \pi$ $[p^2<1]$, $= \frac{1^{a/2}}{2^{a/2}} \frac{\pi}{p^a}$ $[p^2>1]$ (VIII, 432).

5) $\int \frac{Cos\, bx\, dx}{(1-2p\, Cos\, x+p^2)^{a+1}} = \frac{\pi p^b}{(1-p^2)^{2a+1}} \frac{(a+1)^{b/1}}{1^{b/1}} \sum_0^a \binom{a}{n} \frac{(a-b)^{n|-1}}{(b+1)^{n|1}} p^{2n}$ $[p^2<1]$, $=$

$= \frac{\pi p^{-b}}{(p^2-1)^{2a+1}} \frac{(a+1)^{b/1}}{1^{b/1}} \sum_0^a \binom{a}{n} \frac{(a-b)^{n|-1}}{(b+1)^{n|1}} p^{2(a-n)}$ $[p^2>1]$ (VIII, 483).

6) $\int \frac{1}{1-2p\, Cos\, x+p^2} \frac{dx}{1-2q\, Cos\, x+q^2} = \frac{\pi}{(1-p^2)(1-q^2)} \frac{1+pq}{1-pq} \left[\begin{matrix} p^2 < 1, \\ q^2 < 1 \end{matrix}\right]$, $= \frac{\pi}{(p^2-1)(q^2-1)} \frac{pq+1}{pq-1} \left[\begin{matrix} p^2 > 1, \\ q^2 > 1 \end{matrix}\right]$ (VIII, 559).

7) $\int \frac{Sin^2 x}{1-2p\,Cos\,x+p^2}\,\frac{dx}{1-2q\,Cos\,x+q^2} = \frac{\pi}{2}\,\frac{1}{1-pq}\left[\begin{matrix}p^2<1,\\ q^2<1\end{matrix}\right], = \frac{\pi}{2pq}\,\frac{1}{pq-1}\left[\begin{matrix}p^2>1,\\ q^2>1\end{matrix}\right]$ (VIII, 559).

8) $\int \frac{Cos^2 x}{1-2p\,Cos\,x+p^2}\,\frac{dx}{1-2q\,Cos\,x+q^2} = \frac{\pi}{2}\,\frac{1+2pq+p^2+q^2-p^2q^2}{(1-pq)(1-p^2)(1-q^2)}\left[\begin{matrix}p^2<1,\\ q^2<1\end{matrix}\right], =$

$= \frac{\pi}{2pq}\,\frac{-1+2pq+p^2+q^2+p^2q^2}{(pq-1)(p^2-1)(q^2-1)}\left[\begin{matrix}p^2>1,\\ q^2>1\end{matrix}\right]$ (VIII, 559).

9) $\int \frac{Sin\,x}{p^2-2pq\,Cos\,x+q^2}\,\frac{Sin\,rx\,dx}{1-2p^r\,Cos\,rx+p^{2r}} = \frac{\pi}{2p^{r+1}}\,\frac{q^{r-1}}{1-q^r}$ (VIII, 635).

10) $\int \frac{p-q\,Cos\,x}{p^2-2pq\,Cos\,x+q^2}\,\frac{1-p^r\,Cos\,rx}{1-2p^r\,Cos\,rx+p^{2r}}\,dx = \frac{\pi}{2p}\,\frac{2-q^r}{1-q^r}$ (VIII, 635).

11) $\int \frac{Cos\,ax\,dx}{(1-2p_1\,Cos\,x+p_1^2)^{l_1}(1-2p_2\,Cos\,x+p_2^2)^{l_2}\ldots(h\,\text{fact.})} = \frac{\pi}{\Gamma(l_1)\Gamma(l_2)\ldots}\,\frac{d^{l_1-1}}{d\varkappa_1^{\,l_1-1}}\,\frac{d^{l_2-1}}{d\varkappa_2^{\,l_2-1}}\cdots$

$\cdots\frac{\varkappa_1^{\,l_1-1}\varkappa_2^{\,l_2-1}\ldots}{(1-\varkappa_1)^{l_1}(1-\varkappa_2)^{l_2}\ldots}\left\{Y_1\left(\frac{\varkappa_1}{p_1}\right)^{h+a-1}+Y_2\left(\frac{\varkappa_2}{p_2}\right)^{h+a-1}+\ldots\right\}$

$\Bigg[$où $Y_n = \frac{\left(1-\frac{\varkappa_1}{p_1}\right)^2\left(1-\frac{\varkappa_2}{p_2}\right)^2\ldots\left(1-\frac{\varkappa_h}{p_h}\right)^2}{\left(1-\frac{\varkappa_n}{p_n}\right)^2\times\left(\frac{\varkappa_n}{p_n}-\frac{\varkappa_1}{p_1}\right)\left(\frac{\varkappa_n}{p_n}-\frac{\varkappa_2}{p_2}\right)\ldots\left(\frac{\varkappa_n}{p_n}-\frac{\varkappa_h}{p_h}\right)}$; après

la différentiation changez $\varkappa_1, \varkappa_2 \ldots \varkappa_h$ en $p_1^2, p_2^2, \ldots p_h^2\Bigg]$ (IV, 141).

F. Circ. Dir. irrat. fract. TABLE 67. Lim. 0 et π.

1) $\int \frac{dx}{\sqrt{3\pm Cos\,x}} = F'\left(Sin\,\frac{\pi}{4}\right)$ V. T. 9, N. 8.

2) $\int \frac{Sin^{2a} x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1^{a/2}}{2^{a/2}}\,\pi\,\sum_1^\infty \frac{1^{n/2}(2a+1)^{n/2}}{2^{n/2}(2a+2)^{n/2}}\,p^{2n}\,[p^2<1], = \frac{1^{a/2}}{2^{a/2}}\,\frac{\pi}{\sqrt{1-p^2}}\,\sum_0^\infty \frac{(1^{n/2})^2}{2^{n/2}(2a+2)^{n/2}}$

$\left(\frac{p^2}{p^2-1}\right)^n\left[p^2<\frac{1}{2}\right]$ (IV, 142).

3) $\int \frac{dx}{\sqrt{p^2-q^2\,Cos\,x^2}^{\,3}} = \frac{2}{\sqrt{p^2+q^2}}\,\frac{1}{p^2-q^2}\,E'\left(\frac{q\sqrt{2}}{\sqrt{p^2+q^2}}\right)$ (IV, 142).

4) $\int \frac{Cos\,x\,dx}{\sqrt{p^2-q^2\,Cos\,x^2}^{\,3}} = \frac{-2}{q^2\sqrt{p^2+q^2}}\,F'\left(\frac{q\sqrt{2}}{\sqrt{p^2+q^2}}\right) - \frac{p^2\sqrt{2}}{q(p^4-q^4)}\,E'\left(\frac{q\sqrt{2}}{\sqrt{p^2+q^2}}\right)$ (IV, 142).

5) $\int \frac{dx}{\sqrt{1\pm 2p\,Cos\,x+p^2}} = 2F'(p)\,[p<1]$ (VIII, 315).

F. Circ. Dir. irrat. fract. | TABLE 67, suite. | Lim. 0 et π.

6) $\displaystyle\int \frac{Sin\, x\, dx}{\sqrt{1-2p\, Cos\, x+p^2}} = 2\,[p^2 \leqq 1], = \frac{2}{p}\,[p^2 \geqq 1]$ (VIII, 211).

7) $\displaystyle\int \frac{Cos\, x\, dx}{\sqrt{1-2p\, Cos\, x+p^2}} = \frac{2}{p}\,\{\mathrm{F}'(p)-\mathrm{E}'(p)\}\ [p<1]$ (VIII, 431).

8) $\displaystyle\int \frac{Sin^2 x\, dx}{\sqrt{1\pm 2p\, Cos\, x+p^2}^{\,3}} = \frac{2}{p^2}\,\{\mathrm{F}'(p)-\mathrm{E}'(p)\}\ [p<1]$ (VIII, 315).

9) $\displaystyle\int \frac{Cos\, ax\, dx}{\sqrt{1-2p\, Cos\, x+p^2}} = \frac{1^{a/2}}{2^{a/2}}\,\pi p^a \sum_1^\infty \frac{1^{n/2}}{2^{n/2}}\,\frac{(2a+1)^{n/2}}{(2a+2)^{n/2}}\,p^{2n}\ [p^2<1], = \frac{1^{a/2}}{2^{a/2}}\ \frac{\pi p^a}{\sqrt{1-p^2}}$

$\displaystyle\sum_0^\infty \frac{(1^{n/2})^2}{2^{n/2}\,(2a+2)^{n/2}}\left(\frac{p^2}{p^2-1}\right)^n \left[p^2<\frac{1}{2}\right]$ (IV, 141).

10) $\displaystyle\int \frac{Sin\, x\, dx}{\sqrt{1-2p\, Cos\, x+p^2}^{\,3}} = \frac{2}{1-p^2}\,[p^2<1], = \frac{2}{p(p^2-1)}\,[p^2>1], = \infty\,[p^2=1]$ (VIII, 211).

11) $\displaystyle\int \frac{Sin\, x\,.\, Cos\, x\, dx}{\sqrt{1-2p\, Cos\, x+p^2}^{\,3}} = \frac{2p}{1-p^2}\,[p^2<1], = \frac{2}{p^2(p^2-1)}\,[p^2>1], = \infty\,[p^2=1]$ (VIII, 212*).

F. Circulaire Directe. | TABLE 68. | Lim. 0 et 2π.

1) $\displaystyle\int Cos\,\{ax-p\, Cos\, x-q\, Sin\, x\}\, dx = 2\pi\, Cos\left(a\, Arctg\,\frac{q}{p}\right)\frac{(p^2+q^2)^{\frac{1}{2}a}}{2^a\, 1^{a/1}}\left\{1+\sum_1^\infty \frac{(-1)^n}{1^{n/1}\,(1+a)^{n/1}}\right.$

$\displaystyle\left.\left(\frac{p^2+q^2}{4}\right)^n\right\}$ (IV, 143).

2) $\displaystyle\int Cos\{a(x-q\, Sin\, x)\}.Cos\, x\, dx = \frac{2\pi}{q}\ \frac{(\frac{1}{2}aq)^a}{1^{a/1}}\left\{1+\sum_1^\infty (-1)^n\,\frac{(\frac{1}{2}aq)^{2n}}{1^{n/1}\,(1+a)^{n/1}}\right\}$ (IV, 143).

3) $\displaystyle\int Sin\,\{p\, Cos\, x+q\, Sin\, x\}\,.\,Sin\, 2ax\, dx = 0 =$ 4) $\displaystyle\int Cos\,\{p\, Cos\, x+q\, Sin\, x\}\,.\,Cos\,\{(2a+1)x\}\, dx$

(IV, 143).

5) $\displaystyle\int Sin\{p\, Cos\, x+q\, Sin\, x\}.Sin\,\{(2a-1)x\}\, dx = 2\pi\, Cos\left\{(2a-1)Arctg\,\frac{q}{p}\right\}\frac{\sqrt{p^2+q^2}^{\,2a-1}}{2^{2a-1}\,1^{2a-1/1}}$

$\displaystyle\left\{1+\sum_1^\infty (-1)^n\ \frac{(p^2+q^2)^n}{2^{2n}\,1^{n/1}\,(2a)^{n/1}}\right\}$ (IV, 143).

6) $\displaystyle\int Cos\,\{p\, Cos\, x+q\, Sin\, x\}\,.\,Cos\, 2ax\, dx = 2\pi\, Cos\left(2a\, Arctg\,\frac{q}{p}\right)\frac{(p^2+q^2)^a}{2^{2a}\,1^{2a/1}}\left\{1+\sum_1^\infty (-1)^n\right.$

$\displaystyle\left.\frac{(p^2+q^2)^n}{2^{2n}\,1^{n/1}\,(2a+1)^{n/1}}\right\}$ (IV, 143).

7) $\displaystyle\int Cos\,(p\, Sin\, x).Cos^{2a} x\, dx = \frac{1^{a/2}\,\pi}{2^{a-1}\,1^{a/1}}\left\{1+\sum_1^\infty \frac{(-1)^n}{1^{n/1}\,(a+1)^{n/1}}\left(\frac{p}{2}\right)^{2n}\right\}$ (IV, 143).

8) $\int (p\,Sin\,x + q\,Cos\,x)^{2a}\,dx = \frac{1^{a/2}}{2^{a/2}}\,2\pi(p^2+q^2)^a$ (VIII, 429).

9) $\int (p\,Sin\,x + q\,Cos\,x)^{2a+1}\,dx = 0$ (VIII, 429) $=$ 10) $\int (1-Cos\,x)^a\,Sin\,ax\,dx$ (C. Math. J. V. 3, 144).

11) $\int (1-Cos\,x)^a\,Cos\,ax\,dx = (-1)^a\,\frac{\pi}{2^{a-1}}$ (C. Math. Journ. V. 3, 144).

12) $\int \frac{p - Cos(x-\lambda).\sqrt{p^2-1}}{\{q - Cos\,x.\sqrt{q^2-1}\}^2}\,dx = 2\pi\{pq - Cos\,\lambda.\sqrt{(p^2-1)(q^2-1)}\}$ (VIII, 314).

13) $\int \frac{Sin\,ax - p\,Sin\{(a+1)x\}}{1-2p\,Cos\,x+p^2}\,dx = 0\ [p^2<1]$ (VIII, 483).

14) $\int \frac{Cos\,ax - p\,Cos\{(a+1)x\}}{1-2p\,Cos\,x+p^2}\,dx = 2\pi p^a\ [p^2<1]$ (VIII, 483).

15) $\int \frac{dx}{1-(p+qi)Cos\,x-(r+si)Sin\,x} = 0\ [(ps-qr)^2>q^2+s^2], = \frac{2\pi}{\sqrt{1-bc}}\ [(ps-qr)^2<q^2+s^2]$ (VIII, 481*).

16) $\int \frac{Sin\,x\,dx}{1-(p+qi)Cos\,x-(r+si)Sin\,x} = \frac{2\pi i}{b}\ [(ps-qr)^2>q^2+s^2], = \frac{\pi i}{\sqrt{1-bc}}\,\frac{b-c}{1+\sqrt{1-bc}}$ $[(ps-qr)^2<q^2+s^2]$ (VIII, 481).

17) $\int \frac{Cos\,x\,dx}{1-(p+qi)Cos\,x-(r+si)Sin\,x} = -\frac{2\pi}{b}\ [(ps-qr)^2>q^2+s^2], = \frac{\pi}{\sqrt{1-bc}}\,\frac{b+c}{1+\sqrt{1-bc}}$ $[(ps-qr)^2<q^2+s^2]$ (VIII, 481).

18) $\int \frac{Sin\,ax\,dx}{1-(p+qi)Cos\,x-(r+si)Sin\,x} = \frac{\pi i}{\sqrt{1-bc}}\,\frac{\{1+\sqrt{1-bc}\}^a-\{1-\sqrt{1-bc}\}^a}{b^a}$ $[(ps-qr)^2>q^2+s^2], = \frac{\pi i}{\sqrt{1-bc}}\,\frac{b^a-c^a}{\{1+\sqrt{1-bc}\}^a}\ [(ps-qr)^2>q^2+s^2]$ (VIII, 482).

19) $\int \frac{Cos\,ax\,dx}{1-(p+qi)Cos\,x-(r+si)Sin\,x} = \frac{\pi}{\sqrt{1-bc}}\,\frac{\{1-\sqrt{1-bc}\}^a-\{1+\sqrt{1-bc}\}^a}{b^a}$ $[(ps-qr)^2>q^2+s^2], = \frac{\pi}{\sqrt{1-bc}}\,\frac{b^a+c^a}{\{1+\sqrt{1-bc}\}^a}\ [(ps-qr)^2<q^2+s^2]$ (VIII, 481).

Dans 14) à 19) on a $ps>qr$, $b=p+s+(q-r)i$, $c=p-s+(q+r)i$, $\sqrt{1-bc}$ positive.

20) $\int \frac{dx}{p+qi-(r+si)Cos\,x-(t+ui)Sin\,x} = 0\ [(ru-st)^2>(ps-qr)^2+(pu-qt)^2]$ (IV, 146).

21) $\int \frac{dx}{(a+bi\,Cos\,x+ci\,Sin\,x)^2} = \frac{2a\pi}{\sqrt{a^2+b^2+c^2}^3}$ (IV, 147).

22) $\int \frac{dx}{\sqrt{p+q\,Cos\,x}} = \frac{4}{\sqrt{p+q}} F'\left(\sqrt{\frac{2q}{p+q}}\right) =$ 23) $\int \frac{dx}{\sqrt{p-q\,Cos\,x}}$ (VIII, 330).

24) $\int \frac{Cos\,x\,dx}{\sqrt{p+q\,Cos\,x}} = \frac{4}{q}\sqrt{p+q}\,.\,E'\left(\sqrt{\frac{2q}{p+q}}\right) - \frac{4p}{q\sqrt{p+q}} F'\left(\sqrt{\frac{2q}{p+q}}\right)$ (VIII, 330).

25) $\int \frac{Cos\,x\,dx}{\sqrt{p-q\,Cos\,x}} = \frac{4p}{q\sqrt{p+q}} F'\left(\sqrt{\frac{2q}{p+q}}\right) - \frac{4}{q}\sqrt{p+q}\,.\,E'\left(\sqrt{\frac{2q}{p+q}}\right)$ (VIII, 330).

26) $\int \frac{dx}{\sqrt{p+q\,Cos\,x}^3} = \frac{4\sqrt{p+q}}{p^2-q^2} E'\left(\sqrt{\frac{2q}{p+q}}\right)$ (IV, 147).

1) $\int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi} Cos^p\,x\,.\,Sin\,qx\,dx = 0$ (VIII, 532).

2) $\int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi} Cos^p x\,.\,Cos\,qx\,dx = \frac{\pi\Gamma(p+1)}{2^p\,\Gamma\left(\frac{p+q}{2}+1\right)\Gamma\left(\frac{p-q}{2}+1\right)}$ (VIII, 532).

3) $\int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi} Cos^p x\,.\,Sin\left(\frac{1}{2}q\pi - qx\right)dx = \frac{\pi}{2^p}\,Sin\,\frac{1}{2}q\pi\,\frac{\Gamma(p+1)}{\Gamma\left(\frac{p+q}{2}+1\right)\Gamma\left(\frac{p-q}{2}+1\right)}$ (VIII, 532).

4) $\int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi} Cos^p x\,.\,Cos\left(\frac{1}{2}q\pi - qx\right)dx = \frac{\pi}{2^p}\,Cos\,\frac{1}{2}q\pi\,\frac{\Gamma(p+1)}{\Gamma\left(\frac{p+q}{2}+1\right)\Gamma\left(\frac{p-q}{2}+1\right)}$ (VIII, 532).

5) $\int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi} Cos^p x\,.\,Cos\,\{q(x-\lambda)\}\,dx = \frac{\pi}{2^p}\,Cos\,q\lambda\,\frac{\Gamma(p+1)}{\Gamma\left(\frac{p+q}{2}+1\right)\Gamma\left(\frac{p-q}{2}+1\right)}$ V. T. 69, N. 3, 4.

6) $\int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi} \frac{Cos^{a+1}x\,.\,Cos\{(a+1)x\}}{1-p^2\,Cos^2 x}\,dx = \frac{2\pi}{a}\,\frac{d}{dp}\,.\left\{\frac{1-\sqrt{1-p}}{p}\right\}^a$ $[p<1]$ Russell, Phil. Trans. 1855.

7) $\int_{\frac{q\pi}{a}}^{\frac{p\pi}{a}} \frac{Sin\,bx\,dx}{Sin\,ax} = \frac{1}{a}\sum_1^{a-1}(-1)^{n-1}\,Sin\,\frac{nb\pi}{a}\,.\,l\,\frac{\Gamma\left(\frac{a+n+p}{2a}\right)\Gamma\left(\frac{a+n-p}{2a}\right)\Gamma\left(\frac{n+q}{2a}\right)\Gamma\left(\frac{n-p}{2a}\right)}{\Gamma\left(\frac{a+n+q}{2a}\right)\Gamma\left(\frac{a+n-q}{2a}\right)\Gamma\left(\frac{n+p}{2a}\right)\Gamma\left(\frac{n-q}{2a}\right)}$

$\left[\begin{matrix}a+b\\ \text{impair}\end{matrix}\right] = \frac{1}{a}\sum_1^{\frac{1}{2}(a-1)}(-1)^{n-1}\,Sin\,\frac{nb\pi}{a}\,.\,l\,\frac{\Gamma\left(\frac{a-n+p}{a}\right)\Gamma\left(\frac{a-n-p}{a}\right)\Gamma\left(\frac{n+q}{a}\right)\Gamma\left(\frac{n-p}{a}\right)}{\Gamma\left(\frac{a-n+q}{a}\right)\Gamma\left(\frac{a-n-q}{a}\right)\Gamma\left(\frac{n+p}{a}\right)\Gamma\left(\frac{n-q}{a}\right)}$

$\left[\begin{matrix}a+b\\ \text{pair}\end{matrix}\right]$ $[1>p>q>-1]$ Lindmann, Gr. 35, 475.

8) $\int_0^{a\pi} \frac{dx}{p+q\,Cos\,x} = \frac{a\pi}{p\sqrt{1-\frac{q^2}{p^2}}}\,[p^2>q^2], = 0\,[p^2<q^2]$ (VIII, 206).

9) $\int_0^{(a+\frac{1}{2})\pi} \frac{dx}{p+q\,Cos\,x} = \frac{a\pi + Arccos\left(\frac{q}{p}\right)}{p\sqrt{1-\frac{q^2}{p^2}}}\,[p^2>q^2], = \frac{1}{\sqrt{q^2-p^2}}\,l\frac{q+\sqrt{q^2-p^2}}{p}\,[p^2<q^2]$ (VIII, 206).

10) $\int_0^{a\pi} \frac{dx}{(p+q\,Cos\,x)^2} = \frac{ap\pi}{\sqrt{p^2-q^2}^3}\,[p^2>q^2], = 0\,[p^2<q^2]$ (VIII, 208).

11) $\int_0^{(a+\frac{1}{2})\pi} \frac{dx}{(p+q\,Cos\,x)^2} = \frac{-q\,Cos\,a\pi}{p(p^2-q^2)} + p\frac{a\pi + Arccos\left(\frac{q}{p}\right)}{\sqrt{p^2-q^2}^3}\,[p^2>q^2], = \frac{q\,Cos\,a\pi}{p(q^2-p^2)} +$
$+ \frac{p}{\sqrt{q^2-p^2}^3}\,l\frac{p}{q+\sqrt{q^2-p^2}}\,[p^2<q^2]$ (VIII, 325*).

12) $\int_0^{a\pi} \frac{Cos\,x\,dx}{(p+q\,Cos\,x)^2} = \frac{1}{q^2-p^2}\;\frac{qa\pi}{p\sqrt{1-\frac{q^2}{p^2}}}\,[p^2>q^2], = 0\,[p^2<q^2]$ (VIII, 325).

13) $\int_0^{(a+\frac{1}{2})\pi} \frac{Cos\,x\,dx}{(p+q\,Cos\,x)^2} = \frac{1}{p^2-q^2}\left\{\frac{-aq\pi}{p\sqrt{1-\frac{q^2}{p^2}}} + Cos\,a\pi - \frac{q}{p\sqrt{1-\frac{q^2}{p^2}}}\,Arccos\frac{q}{p}\right\}[p^2>q^2], =$
$= \frac{1}{q^2-p^2}\left\{Cos\,a\pi + \frac{q}{\sqrt{q^2-p^2}}\,l\frac{q+\sqrt{q^2-p^2}}{p}\right\}[p^2<q^2]$ (VIII, 325*).

14) $\int_0^{a\pi} \frac{p\,Cos\,x+q}{(p+q\,Cos\,x)^2}\,dx = 0$ (VIII, 325).

15) $\int_0^{(a+\frac{1}{2})\pi} \frac{p\,Cos\,x+q}{(p+q\,Cos\,x)^2}\,dx = \frac{1}{p}\,Cos\,a\pi$ (VIII, 325*).

16) $\int_0^{r\pi} \frac{p\,Cos\,x+q}{(p+q\,Cos\,x)^2}\,dx = \frac{Sin\,r\pi}{p+q\,Cos\,r\pi}$ (VIII, 325).

17) $\int_0^{2a\pi} \frac{dx}{p+q\,Cos\,x+r\,Sin\,x} = \frac{2a\pi}{p\sqrt{1-\frac{q^2+r^2}{p^2}}}\,[p^2>q^2+r^2], = 0\,[p^2<q^2+r^2]$ (VIII, 210).

18) $\int_0^{(2a-\frac{1}{2})\pi} \frac{dx}{p+q\,Cos\,x+r\,Sin\,x} = \frac{2}{p\sqrt{1-\frac{q^2+r^2}{p^2}}}\left\{a\pi - Arctg\left(\frac{\sqrt{p^2-q^2-r^2}}{p+q-r}\right)\right\}[p^2>q^2+r^2], =$
$= \frac{1}{2\sqrt{q^2+r^2-p^2}}\,l\left\{\frac{p+q-r-\sqrt{q^2+r^2-p^2}}{p+q-r+\sqrt{q^2+r^2-p^2}}\right\}^2 [p^2<q^2+r^2]$ (VIII, 208, 210).

19) $\int_0^{(2a+\frac{1}{2})\pi} \frac{dx}{p+q\,Cos\,x+r\,Sin\,x} = \frac{2}{p\sqrt{1-\frac{q^2+r^2}{p^2}}}\left\{a\pi + Arctg\left(\frac{\sqrt{p^2-q^2-r^2}}{p+q+r}\right)\right\} [p^2>q^2+r^2], =$

$= \frac{1}{2\sqrt{q^2+r^2-p^2}}\, l \left\{\frac{p+q+r+\sqrt{q^2+r^2-p^2}}{p+q+r-\sqrt{q^2+r^2-p^2}}\right\}^2 [p^2<q^2+r^2]$ (VIII, 208, 210).

20) $\int_0^{(2a+1)\pi} \frac{dx}{p+q\,Cos\,x+r\,Sin\,x} = \frac{2}{p\sqrt{1-\frac{q^2+r^2}{p^2}}}\left\{a\pi + Arctg\left(\sqrt{\frac{p^2-q^2-r^2}{r^2}}\right)\right\} \left[\begin{matrix}p^2>q^2+r^2,\\ r>0\end{matrix}\right], =$

$= \frac{2}{p\sqrt{1-\frac{q^2+r^2}{p^2}}}\left\{(a+1)\pi - Arctg\left(\sqrt{\frac{p^2-q^2-r^2}{r^2}}\right)\right\} \left[\begin{matrix}p^2>q^2+r^2,\\ r<0\end{matrix}\right], =$

$= \frac{1}{2\sqrt{q^2+r^2-p^2}}\, l \left\{\frac{r-\sqrt{q^2+r^2-p^2}}{r+\sqrt{q^2+r^2-p^2}}\right\}^2 [p^2<q^2+r^2]$ (VIII, 209, 210).

21) $\int_0^{2a\pi} \frac{dx}{(p+q\,Cos\,x+r\,Sin\,x)^2} = \frac{2ap\pi}{\sqrt{p^2-q^2-r^2}^3} [p^2>q^2+r^2], = 0\, [p^2<q^2+r^2]$ (VIII, 211*).

22) $\int_0^{(2a-\frac{1}{2})\pi} \frac{dx}{(p+q\,Cos\,x+r\,Sin\,x)^2} = \frac{q^2-r^2+p(q-r)}{(p+q)(p+r)(p^2-q^2-r^2)} + \frac{2p}{\sqrt{p^2-q^2-r^2}^3}\left\{a\pi - Arctg\left(\frac{\sqrt{p^2-q^2-r^2}}{p+q-r}\right)\right\}$

$[p^2>q^2+r^2], = \frac{r^2-q^2+p(r-q)}{(p+q)(p+r)(q^2+r^2-p^2)} + \frac{p}{2\sqrt{q^2+r^2-p^2}^3}\, l\left\{\frac{p+q-r-\sqrt{q^2+r^2-p^2}}{p+q-r+\sqrt{q^2+r^2-p^2}}\right\}^2$

$[p^2<q^2+r^2]$ (VIII, 211*).

23) $\int_0^{(2a+\frac{1}{2})\pi} \frac{dx}{(p+q\,Cos\,x+r\,Sin\,x)^2} = \frac{-[q^2+r^2+p(q+r)]}{(p+q)(p+r)(p^2-q^2-r^2)} + \frac{2p}{\sqrt{p^2-q^2-r^2}^3}\left\{a\pi + Arctg\left(\frac{\sqrt{p^2-q^2-r^2}}{p+q+r}\right)\right\}$

$[p^2>q^2+r^2], = \frac{q^2+r^2+p(q+r)}{(p+q)(p+r)(q^2+r^2-p^2)} + \frac{p}{2\sqrt{q^2+r^2-p^2}^3}\, l\left\{\frac{p+q+r-\sqrt{q^2+r^2-p^2}}{p+q+r+\sqrt{q^2+r^2-p^2}}\right\}^2$

$[p^2<q^2+r^2]$ (VIII, 211*).

24) $\int_0^{(2a+1)\pi} \frac{dx}{(p+q\,Cos\,x+r\,Sin\,x)^2} = \frac{2pr}{(q^2-p^2)(p^2-q^2-r^2)} + \frac{2p}{\sqrt{p^2-q^2-r^2}^3}\left\{a\pi + Arctg\left(\sqrt{\frac{p^2-q^2-r^2}{r^2}}\right)\right\}$

$\left[\begin{matrix}p^2>q^2+r^2,\\ r>0\end{matrix}\right], = \frac{2pr}{(p^2-q^2)(q^2+r^2-p^2)} + \frac{2p}{\sqrt{p^2-q^2-r^2}^3}\left\{(a+1)\pi - Arctg\left(\sqrt{\frac{p^2-q^2-r^2}{r^2}}\right)\right\}$

$\left[\begin{matrix}p^2>q^2+r^2,\\ r<0\end{matrix}\right], = \frac{2pr}{(p^2-q^2)(q^2+r^2-p^2)} + \frac{p}{2\sqrt{q^2+r^2-p^2}^3}\, l\left\{\frac{r-\sqrt{q^2+r^2-p^2}}{r+\sqrt{q^2+r^2-p^2}}\right\}^2$

$[p^2<q^2+r^2]$ (VIII, 211*).

25) $\int_0^{2a\pi} \frac{dx}{(p+q\,Cos\,x+Sin\,rx)^3} = \frac{2p^2+q^2+r^2}{p\sqrt{1-\frac{q^2+r^2}{p^2}}^5}\, a\pi\, [p^2>q^2+r^2], = 0\, [p^2<q^2+r^2]$ (IV, 150).

26) $\int_0^{2a\pi} \frac{dx}{(p+q\,Cos\,x+r\,Sin\,x)^4} = \frac{2p^2+3(q^2+r^2)}{\sqrt{p^2-q^2-r^2}^7}\, pa\pi\, [p^2>q^2+r^2], = 0\, [p^2<q^2+r^2]$ (IV, 150).

1) $\int Sin(qx^2)\,dx = \frac{1}{2}\sqrt{\frac{\pi}{2q}} =$ 2) $\int Cos(qx^2)\,dx$ (VIII, 442).

3) $\int Sin(qx^2 \pm 2px)\,dx = \left(Cos\frac{p^2}{q} - Sin\frac{p^2}{q}\right)\frac{1}{2}\sqrt{\frac{\pi}{2q}}$ (VIII, 443).

4) $\int Cos(qx^2 \pm 2px)\,dx = \left(Cos\frac{p^2}{q} + Sin\frac{p^2}{q}\right)\frac{1}{2}\sqrt{\frac{\pi}{2q}}$ (VIII, 443).

5) $\int Sin\left(qx^2 \pm 2px + \frac{p^2}{q}\right)dx = \frac{1}{2}\sqrt{\frac{\pi}{2q}} =$ 6) $\int Cos\left(qx^2 \pm 2px + \frac{p^2}{q}\right)dx$ (VIII, 442).

7) $\int Sin(px^q + rx^s)\,dx = \frac{1}{q}\sum_0^\infty \frac{(-r)^n}{1^{n/1}}\,\frac{1}{(\sqrt[q]{p})^{ns+1}}\,\Gamma\left(\frac{ns+1}{q}\right) Sin\left\{\frac{n(s-q)+1}{2q}\pi\right\}$

8) $\int Cos(px^q + rx^s)\,dx = \frac{1}{q}\sum_0^\infty \frac{(-r)^n}{1^{n/1}}\,\frac{1}{(\sqrt[q]{p})^{ns+1}}\,\Gamma\left(\frac{ns+1}{q}\right) Cos\left\{\frac{n(s-q)\pi+1}{2q}\pi\right\}$

Sur 7) et 8) voyez De Morgan, Int. Calc.

9) $\int Sin^{2a+1}(px^2)\,dx = \frac{1}{2^{2a+1}}\sum_0^a (-1)^{n+a}\binom{2a+1}{n}\sqrt{\frac{\pi}{2p(2a+1-2n)}}$ (VIII, 476).

10) $\int Cos^{2a+1}(px^2)\,dx = \frac{1}{2^{2a+1}}\sum_0^a \binom{2a+1}{n}\sqrt{\frac{\pi}{2p(2a+1-2n)}}$ (VIII, 476).

11) $\int Sin(qx^2).Sin\,2px\,dx = 0 =$ 12) $\int Cos(qx^2).Sin\,2px\,dx$ (VIII, 443).

13) $\int Sin(qx^2).Cos\,2px\,dx = \frac{1}{2}\left(Cos\frac{p^2}{q} - Sin\frac{p^2}{q}\right)\sqrt{\frac{\pi}{2q}}$ (VIII, 443).

14) $\int Cos(qx^2).Cos\,2px\,dx = \frac{1}{2}\left(Cos\frac{p^2}{q} + Sin\frac{p^2}{q}\right)\sqrt{\frac{\pi}{2q}}$ (VIII, 443).

15) $\int Sin(q^2 + x^2).Cos\,2qx\,dx = \frac{1}{4}\sqrt{2\pi} =$ 16) $\int Cos(q^2 + x^2).Cos\,2qx\,dx$ V. T. 70, N. 13, 14.

17) $\int Sin\left(qx^2 + \frac{p^2}{q}\right).Sin\,2px\,dx = 0 =$ 18) $\int Cos\left(qx^2 + \frac{p^2}{q}\right).Sin\,2px\,dx$ (VIII, 443).

19) $\int Sin\left(qx^2 + \frac{p^2}{q}\right).Cos\,2px\,dx = \frac{1}{2}\sqrt{\frac{\pi}{2q}} =$ 20) $\int Cos\left(qx^2 + \frac{p^2}{q}\right).Cos\,2px\,dx$ (VIII, 443).

21) $\int Sin\,qx\,.\,Cos(2p\sqrt{x})\,dx = 0 =$ 22) $\int Cos\,qx.Cos(2p\sqrt{x})\,dx$ V. T. 70, N. 11, 12.

23) $\int Sin\,qx\,.\,Sin(2p\sqrt{x})\,dx = \left(Sin\frac{p^2}{q} + Cos\frac{p^2}{q}\right)\frac{p}{q}\sqrt{\frac{\pi}{2q}}$ (VIII, 443).

24) $\int Cos\, qx\,.\,Sin(2p\sqrt{x})\,dx = \left(Sin\frac{p^2}{q} - Cos\frac{p^2}{q}\right)\frac{p}{q}\sqrt{\frac{\pi}{2q}}$ (VIII, 443).

25) $\int Sin\left(p^2x^2 - 2pq + \frac{q^2}{x^2}\right)dx = \frac{1}{4p}\sqrt{2\pi} =$ 26) $\int Cos\left(p^2x^2 - 2pq + \frac{q^2}{x^2}\right)dx$ (VIII, 427).

27) $\int Sin\left(p^2x^2 + \frac{q^2}{x^2}\right)dx = \frac{1}{4p}(Cos\,2pq + Sin\,2pq)\sqrt{2\pi}$ (VIII, 427).

28) $\int Cos\left(p^2x^2 + \frac{q^2}{x^2}\right)dx = \frac{1}{4p}(Cos\,2pq - Sin\,2pq)\sqrt{2\pi}$ (VIII, 427).

29) $\int \frac{dx}{Cos\{(q-pi)x\}} = \frac{\pi}{2(p+qi)}$ (VIII, 297).

30) $\int \frac{Sin\,qx - p\,Sin\{(q-r)x\}}{1 - 2p\,Cos\,rx + p^2}dx = \sum_0^\infty \frac{p^n}{nr+q}$

31) $\int \frac{Cos\,qx - p\,Cos\{(q-r)x\}}{1 - 2p\,Cos\,rx + p^2}dx = 0$

} Poisson, P. 20, 222.

1) $\int Sin\{(a+1)x\}.Sin^{a-1}x\,dx = \frac{1}{a}Sin^a\lambda\,.\,Sin\,a\lambda$

2) $\int Sin\{(a+1)x\}.Cos^{a-1}x\,dx = \frac{1}{\lambda}(1 - Cos^a\lambda\,.\,Cos\,a\lambda)$

3) $\int Cos\{(a+1)x\}.Sin^{a-1}x\,dx = \frac{1}{a}Sin^a\lambda\,.\,Cos\,a\lambda$

4) $\int Cos\{(a+1)x\}.Cos^{a-1}x\,dx = \frac{1}{\lambda}Cos^a\lambda\,.\,Sin\,a\lambda$

5) $\int Sin\left\{(a+1)\left(\frac{\pi}{2}-x\right)\right\}.Sin^{a-1}x\,dx = \frac{1}{a}Sin^a\lambda.Cos\left\{a\left(\frac{\pi}{2}-\lambda\right)\right\}$

6) $\int Cos\left\{(a+1)\left(\frac{\pi}{2}-x\right)\right\}.Sin^{a-1}x\,dx = -\frac{1}{a}Sin^a\lambda.Sin\left\{a\left(\frac{\pi}{2}-\lambda\right)\right\}$

} Lindmann, Gr. 38, 246.

7) $\int \frac{dx}{\sqrt{Cos^2x - Cos^2\lambda}} = F'(Sin\,\lambda)$ (IV, 159).

8) $\int \frac{Sin\,x\,dx}{\sqrt{Cos^2x - Cos^2\lambda}} = \frac{1}{2}\,l\,\frac{1+Sin\,\lambda}{1-Sin\,\lambda}$ (VIII, 307).

9) $\int \frac{Cos^2x\,dx}{\sqrt{Cos^2x - Cos^2\lambda}} = E'(Sin\,\lambda)$ (IV, 159).

10) $\int \frac{Sin^2 x\, dx}{\sqrt{Cos^2 x - Cos^2 \lambda}} = \frac{1 + Sin^2 \lambda}{4}\, l \frac{1 + Sin \lambda}{1 - Sin \lambda} - \frac{1}{2} Sin \lambda$ (IV, 159).

11) $\int \frac{dx}{Cos^2 x . \sqrt{Cos^2 x - Cos^2 \lambda}} = Sec^2 \lambda . E'(Sin \lambda)$ (IV, 159).

12) $\int \frac{dx}{\sqrt{(Cos^2 x - Cos^2 \lambda)(1 - Cos^2 \mu . Cos^2 x)}} = \frac{1}{\sqrt{1 - Cos^2 \lambda . Cos^2 \mu}} F'\left(\frac{Sin \lambda}{\sqrt{1 - Cos^2 \lambda . Cos^2 \mu}}\right)$ (VIII, 312).

13) $\int \frac{Sin\, x\, dx}{\sqrt{(Cos^2 x - Cos^2 \lambda)(1 - Cos^2 \mu . Cos^2 x)}} = F\left\{\sqrt{1 - Cos^2 \lambda . Cos^2 \mu},\ Arccot(Sin \mu . Cot \lambda)\right\}$ (IV, 159).

14) $\int \frac{Sin\, x . Cos\, x\, dx}{\sqrt{(Cos^2 x - Cos^2 \lambda)(1 - Cos^2 \mu . Cos^2 x)}} = Sec \mu . Arctg(Sin \lambda . Cot \mu)$ (IV, 159).

15) $\int \frac{Cos^2 x\, dx}{\sqrt{(Cos^2 x - Cos^2 \lambda)(1 - Cos^2 \mu . Cos^2 x)}} = \frac{Cos^2 \lambda}{\sqrt{1 - Cos^2 \lambda . Cos^2 \mu}} F'\left(\frac{Sin \lambda}{\sqrt{1 - Cos^2 \lambda . Cos^2 \mu}}\right) +$

$+ Sec \mu . \left\{F'\left(\frac{Sin \lambda}{\sqrt{1 - Cos^2 \lambda . Cos^2 \mu}}\right) . E\left(\frac{Sin \lambda}{\sqrt{1 - Cos^2 \lambda . Cos^2 \mu}},\ Arccos(Cos \lambda . Cos \mu)\right) -\right.$

$\left. - E'\left(\frac{Sin \lambda}{\sqrt{1 - Cos^2 \lambda . Cos^2 \mu}}\right) . F\left(\frac{Sin \lambda}{\sqrt{1 - Cos^2 \lambda . Cos^2 \mu}},\ Arccos(Cos \lambda . Cos \mu)\right)\right\}$ (IV, 159).

16) $\int \frac{Sin\, x . Cos^2 x\, dx}{\sqrt{(Cos^2 x - Cos^2 \lambda)(1 - Cos^2 \mu . Cos^2 x)}} = Sec^2 \mu . E\left(\sqrt{1 - Cos^2 \lambda . Cos^2 \mu},\ Arccot(Sin \mu . Cot \lambda)\right) -$

$- Sin \lambda . Sin \mu . Sec^2 \mu$ (IV, 159).

17) $\int \frac{Sin\, x . Cos^3 x\, dx}{\sqrt{(Cos^2 x - Cos^2 \lambda)(1 - Cos^2 \mu . Cos^2 x)}} = \frac{1 + Cos^2 \lambda . Cos^2 \mu}{2\, Cos^3 \mu} Arctg(Sin \lambda . Cot \mu) - \frac{Sin \mu . Sin \lambda}{2\, Cos^2 \mu}$ (IV, 159).

18) $\int \frac{Sin\, x\, dx}{Cos\, x . \sqrt{(Cos^2 x - Cos^2 \lambda)(1 - Cos^2 \mu . Cos^2 x)}} = Sec \lambda . Arccot(Sin \mu . Cot \lambda)$ (IV, 159).

19) $\int \frac{dx}{Cos^2 x . \sqrt{(Cos^2 x - Cos^2 \lambda)(1 - Cos^2 \mu . Cos^2 x)}} = \frac{Cos^2 \mu}{\sqrt{1 - Cos^2 \lambda . Cos^2 \mu}} F'\left(\frac{Sin \lambda}{\sqrt{1 - Cos^2 \lambda . Cos^2 \mu}}\right) +$

$+ Sec^2 \lambda . \sqrt{1 - Cos^2 \lambda . Cos^2 \mu} . E'\left(\frac{Sin \lambda}{\sqrt{1 - Cos^2 \lambda . Cos^2 \mu}}\right)$ (IV, 159).

20) $\int \frac{Sin\, x\, dx}{Cos^2 x . \sqrt{(Cos^2 x - Cos^2 \lambda)(1 - Cos^2 \mu . Cos^2 x)}} = Sec^2 \lambda . E\left\{\sqrt{1 - Cos^2 \lambda . Cos^2 \mu},\ Arccot(Sin \mu . Cot \lambda)\right\}$ (IV, 159).

21) $\int \frac{Sin\, x\, dx}{Cos^3 x . \sqrt{(Cos^2 x - Cos^2 \lambda)(1 - Cos^2 \mu . Cos^2 x)}} = \frac{1 + Cos^2 \lambda . Cos^2 \mu}{2\, Cos^3 \lambda} Arccot(Sin \mu . Cot \lambda) +$

$+ \frac{Sin \mu . Sin \lambda}{2\, Cos^2 \lambda}$ (IV, 159).

22) $\int \frac{Cos \frac{1}{2} x}{1 - 2p\, Cos\, x + p^2} \frac{dx}{\sqrt{2(Cos\, x - Cos \lambda)}} = \frac{\pi}{2(1 - p)\sqrt{1 - 2p Cos \lambda + p^2}}$ (IV, 159).

1) $\int Sin\,x . Cos\,x\,dx\,\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{\pi}{16}(Sin^2 \mu - Sin^2 \lambda)^2$ (IV, 160).

2) $\int Sin^3 x . Cos\,x\,dx\,\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{\pi}{32}(Sin^2 \mu - Sin^2 \lambda)^2 (Sin^2 \lambda + Sin^2 \mu)$ (IV, 160).

3) $\int Sin^{2a+1} x . Cos\,x\,dx\,\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{\pi}{4}(Sin^2 \mu - Sin^2 \lambda)^2 Sin^{2a-4} \mu .$
$\sum_0^\infty (-1)^n \binom{a-2}{n} \frac{3^{n/2}}{4^{n+1/2}} \frac{(Sin^2 \mu - Sin^2 \lambda)^n}{Sin^{2n} \mu}$ (IV, 160).

4) $\int \frac{Cos\,x}{Sin\,x}\,dx\,\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{\pi}{4}(Sin\,\mu - Sin\,\lambda)^2$ (IV, 160).

5) $\int \frac{Cos\,x}{Sin^3 x}\,dx\,\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{\pi}{4}\frac{(Sin\,\mu - Sin\,\lambda)^2}{Sin\,\lambda . Sin\,\mu}$ (IV, 160).

6) $\int \frac{Cos\,x}{Sin^5 x}\,dx\,\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{\pi}{16}\frac{(Sin^2 \mu - Sin^2 \lambda)^2}{Sin^3 \lambda . Sin^3 \mu}$ (IV, 160).

7) $\int \frac{Cos\,x}{Sin^7 x}\,dx\,\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{\pi}{32}\frac{(Sin^2 \mu - Sin^2 \lambda)^2}{Sin^5 \lambda . Sin^5 \mu}(Sin^2 \lambda + Sin^2 \mu)$ (IV, 160).

8) $\int \frac{Cos\,x}{Sin^{2a+1} x}\,dx\,\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{\pi\,Sin\,\mu}{4\,Sin^{2a-1} \lambda}\sum_0^\infty (-1)^n \binom{a-2}{n}\frac{3^{n/2}}{4^{n+1/2}}$
$\left(\frac{Sin^2 \mu - Sin^2 \lambda}{Sin^2 \mu}\right)^{n+2}$ (IV, 160).

9) $\int \frac{Sin\,x}{Cos\,x}\,dx\,\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{\pi}{4}(Cos\,\lambda - Cos\,\mu)^2$ (IV, 160).

10) $\int \frac{Sin\,x}{Cos^3 x}\,dx\,\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{\pi}{4}\frac{(Cos\,\lambda - Cos\,\mu)^2}{Cos\,\lambda . Cos\,\mu}$ (IV, 160).

11) $\int \frac{Sin\,x}{Cos^5 x}\,dx\,\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{\pi}{16}\frac{(Cos^2 \lambda - Cos^2 \mu)^2}{Cos^3 \lambda . Cos^3 \mu}$ (IV, 160).

12) $\int \frac{Sin\,x}{Cos^{2a+1} x}\,dx\,\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{\pi\,Cos\,\lambda}{4\,Cos^{2a-1} \mu}\sum_0^\infty (-1)^n \binom{a-2}{n}\frac{3^{n/2}}{4^{n+1/2}}$
$\left(\frac{Cos^2 \lambda - Cos^2 \mu}{Cos^2 \lambda}\right)^{n+2}$ (IV, 160).

13) $\int \frac{dx}{Sin\,x . Cos\,x}\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{1}{2}\pi\{1 - Cos(\mu - \lambda)\}$ (IV, 161).

14) $\int \frac{dx}{Sin^3 x . Cos\,x}\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{1}{4}\pi\,Cosec\,\lambda . Cosec\,\mu . Sin^2(\mu - \lambda)$ (IV, 161).

15) $\int \frac{dx}{Sin x . Cos^3 x} \sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{1}{4} \pi \, Sec \lambda . Sec \mu . Sin^2 (\mu - \lambda)$ (IV, 161).

16) $\int \frac{Sin^2 x \, dx}{Cos x} \sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{1}{2} \pi (Cos \lambda - Cos \mu)^2 - \frac{1}{16} \pi (Sin^2 \mu - Sin^2 \lambda)^2$ (IV, 161).

F. Circ. Dir. irrat. fract. à dén. irrat. TABLE 73. Lim. λ et μ.

1) $\int \frac{dx}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} = \frac{1}{Cos \lambda . Sin \mu} F' \left(\frac{\sqrt{Cos^2 \lambda - Cos^2 \mu}}{Cos \lambda . Sin \mu} \right)$ (VIII, 310).

2) $\int \frac{Cos x \, dx}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} = Cosec \mu . F' \left(\sqrt{\frac{Sin^2 \mu - Sin^2 \lambda}{Sin^2 \mu}} \right)$ (IV, 163).

3) $\int \frac{Sin^2 x \, dx}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} = \frac{Sin \mu}{Cos \lambda} F' \left(\frac{\sqrt{Cos^2 \lambda - Cos^2 \mu}}{Cos \lambda . Sin \mu} \right) + E' \left(\frac{\sqrt{Cos^2 \lambda - Cos^2 \mu}}{Cos \lambda . Sin \mu} \right) . F \left(\frac{\sqrt{Cos^2 \lambda - Cos^2 \mu}}{Cos \lambda . Sin \mu}, \mu \right) - F' \left(\frac{\sqrt{Cos^2 \lambda - Cos^2 \mu}}{Cos \lambda . Sin \mu} \right) . E \left(\frac{\sqrt{Cos^2 \lambda - Cos^2 \mu}}{Cos \lambda . Sin \mu}, \mu \right)$ (IV, 162).

4) $\int \frac{Sin x . Cos x \, dx}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} = \frac{1}{2} \pi$ (VIII, 311).

5) $\int \frac{Sin^2 x . Cos x \, dx}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} = Sin \mu . E' \left(\sqrt{\frac{Sin^2 \mu - Sin^2 \lambda}{Sin^2 \mu}} \right)$ (IV, 163).

6) $\int \frac{Sin^4 x \, dx}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} = \frac{1 + Sin^2 \lambda + Sin^2 \mu}{2} \left\{ E' \left(\frac{\sqrt{Cos^2 \lambda - Cos^2 \mu}}{Cos \lambda . Sin \mu} \right) . F \left(\frac{\sqrt{Cos^2 \lambda - Cos^2 \mu}}{Cos \lambda . Sin \mu}, \mu \right) - F' \left(\frac{\sqrt{Cos^2 \lambda - Cos^2 \mu}}{Cos \lambda . Sin \mu} \right) . E \left(\frac{\sqrt{Cos^2 \lambda - Cos^2 \mu}}{Cos \lambda . Sin \mu}, \mu \right) \right\} + \frac{1 + Sin^2 \mu}{2 \, Cos \lambda} Sin \mu . F' \left(\frac{\sqrt{Cos^2 \lambda - Cos^2 \mu}}{Cos \lambda . Sin \mu} \right) - \frac{Sin \mu . Cos \lambda}{2} E' \left(\frac{\sqrt{Cos^2 \lambda - Cos^2 \mu}}{Cos \lambda . Sin \mu} \right)$ (IV, 163).

7) $\int \frac{Sin^3 x . Cos x \, dx}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} = \frac{1}{4} \pi (Sin^2 \lambda + Sin^2 \mu)$ (IV, 161).

8) $\int \frac{Sin x . Cos^3 x \, dx}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} = \frac{1}{4} \pi (Cos^2 \lambda + Cos^2 \mu)$ (IV, 162).

9) $\int \frac{Sin^5 x . Cos x \, dx}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} = \frac{1}{16} \pi (3 \, Sin^4 \lambda + 2 \, Sin^2 \lambda . Sin^2 \mu + 3 \, Sin^4 \mu)$ (IV, 162).

10) $\int \frac{Sin^{2a+1} x . Cos x \, dx}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} = \frac{1}{2} \pi \, Sin^{2a} \mu . \sum_0^a (-1)^n \binom{a}{n} \frac{1^{n/2}}{2^{n/2}} \left(\frac{Sin^2 \mu - Sin^2 \lambda}{Sin^2 \mu} \right)^n$ (IV, 162).

11) $\int \frac{Sin\,x\,.\,Cos^{2a+1}x\,dx}{\sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{1}{2}\pi\,Cos^{2a}\lambda\,.\,\sum_0^a (-1)^n \binom{a}{n} \frac{1^{n/2}}{2^{n/2}} \left(\frac{Cos^2\lambda - Cos^2\mu}{Cos^2\lambda}\right)^n$ (IV, 162).

12) $\int \frac{Cos\,x\,dx}{Sin\,x.\sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{1}{2}\pi\,Cosec\,\lambda\,.\,Cosec\,\mu$ (VIII, 312).

13) $\int \frac{dx}{Sin^2 x\sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{1}{Cos\lambda\,.\,Sin\mu}\,F'\left(\frac{\sqrt{Cos^2\lambda - Cos^2\mu}}{Cos\lambda\,.\,Sin\mu}\right) + \frac{Cos\lambda}{Sin^2\lambda.Sin\mu}$
$E'\left(\frac{\sqrt{Cos^2\lambda - Cos^2\mu}}{Cos\lambda\,.\,Sin\mu}\right)$ V. T. 73, N. 1, 15.

14) $\int \frac{Cos\,x\,dx}{Sin^2 x.\sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{1}{Sin^2\lambda.Sin\mu}\,E'\left(\sqrt{\frac{Sin^2\mu - Sin^2\lambda}{Sin^2\mu}}\right)$ (IV, 163).

15) $\int \frac{Cos^2 x\,dx}{Sin^2 x.\sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{Cos\lambda}{Sin^2\lambda.Sin\mu}\,E'\left(\sqrt{1 - Tg^2\lambda.Cot^2\mu}\right)$ (VIII, 310).

16) $\int \frac{Cos\,x\,dx}{Sin^3 x.\sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{1}{4}\pi\,Cosec^3\lambda.Cosec^3\mu.(Sin^2\lambda + Sin^2\mu)$ (VIII, 312).

17) $\int \frac{Cos\,x\,dx}{Sin^{2a+1}x.\sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{1}{2}\pi\,Cosec^{2a+1}\lambda.Cosec\,\mu.\sum_0^a (-1)^n \binom{a}{n} \frac{1^{n/2}}{2^{n/2}}$
$\left(\frac{Sin^2\mu - Sin^2\lambda}{Sin^2\mu}\right)^n$ (IV, 162).

18) $\int \frac{dx}{Cos\,x.\sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{1}{Sin\mu.Cos^2\mu}\,\Pi\left\{\frac{Sin^2\mu - Sin^2\lambda}{Sin^2\lambda},\ Tg^2\mu,\ \sqrt{\frac{Sin^2\mu - Sin^2\lambda}{Sin^2\mu}}\right\}$
(IV, 163).

19) $\int \frac{Sin\,x\,dx}{Cos\,x.\sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{1}{2}\pi\,Sec\,\lambda\,.Sec\,\mu$ (IV, 162).

20) $\int \frac{dx}{Cos^2 x.\sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{1}{Cos\lambda.Sin\mu}\,F'\left(\frac{\sqrt{Cos^2\lambda - Cos^2\mu}}{Cos\lambda\,.\,Sin\mu}\right) + \frac{Sin\mu}{Cos\lambda.Cos^2\mu}$
$E'\left(\frac{\sqrt{Cos^2\lambda - Cos^2\mu}}{Cos\lambda\,.\,Sin\mu}\right)$ V. T. 73, N. 1, 21.

21) $\int \frac{Sin^2 x\,dx}{Cos^2 x.\sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{Tg\,\mu}{Cos\lambda.Cos\mu}\,E'\left(\sqrt{1 - Tg^2\lambda.Cot^2\mu}\right)$ (VIII, 310).

22) $\int \frac{Sin\,x\,dx}{Cos^3 x.\sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{1}{4}\pi\,Sec^3\lambda\,.Sec^3\mu.(Cos^2\lambda + Cos^2\mu)$ (IV, 162).

23) $\int \frac{Sin\,x\,dx}{Cos^{2a+1}x.\sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{1}{4}\pi\,Sec^{2a+1}\mu.Sec\,\lambda.\sum_0^a (-1)^n \binom{a}{n} \frac{1^{n/2}}{2^{n/2}}$
$\left(\frac{Cos^2\lambda - Cos^2\mu}{Cos^2\lambda}\right)^n$ (IV, 162).

24) $\int \frac{Sin\,x\,.\,Cos\,x}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} \frac{dx}{\sqrt{\{1-(1-Cot^2\lambda\,.\,Cot^2\mu)\,Sin^2 x\}}} = \frac{Sin\,\mu}{Cos\,\lambda}$
$F'\left\{\sqrt{1-Sin^2 2\mu\,.\,Cosec^2 2\lambda}\right\}$ (VIII, 427).

25) $\int \frac{Sin\,x\,.\,Cos\,x}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} \frac{dx}{1-p^2 Sin^2 x} = \frac{\pi}{2\sqrt{(1-p^2 Sin^2\lambda)(1-p^2 Sin^2\mu)}}$
(IV, 347*).

26) $\int dx \sqrt{\frac{Sin^2 x - Sin^2\lambda}{Sin^2\mu - Sin^2 x}} = \frac{Sin^2\mu - Sin^2\lambda}{Sin\,\mu\,.\,Cos\,\lambda} F'\left(\frac{\sqrt{Cos^2\lambda - Cos^2\mu}}{Cos\,\lambda\,.\,Sin\,\mu}\right) + E'\left(\frac{\sqrt{Cos^2\lambda - Cos^2\mu}}{Cos\,\lambda\,.\,Sin\,\mu}\right).$
$F\left(\frac{\sqrt{Cos^2\lambda - Cos^2\mu}}{Cos\,\lambda\,.\,Sin\,\mu},\mu\right) - F'\left(\frac{\sqrt{Cos^2\lambda - Cos^2\mu}}{Cos\,\lambda\,.\,Sin\,\mu}\right).\,E\left(\frac{\sqrt{Cos^2\lambda - Cos^2\mu}}{Cos\,\lambda\,.\,Sin\,\mu},\mu\right)$ (IV, 163).

27) $\int dx \sqrt{\frac{Sin^2\mu - Sin^2 x}{Sin^2 x - Sin^2\lambda}} = F'\left(\frac{\sqrt{Cos^2\lambda - Cos^2\mu}}{Cos\,\lambda\,.\,Sin\,\mu}\right).E\left(\frac{\sqrt{Cos^2\lambda - Cos^2\mu}}{Cos\,\lambda\,.\,Sin\,\mu},\mu\right) - E'\left(\frac{\sqrt{Cos^2\lambda - Cos^2\mu}}{Cos\,\lambda\,.\,Sin\,\mu}\right).$
$F\left(\frac{\sqrt{Cos^2\lambda - Cos^2\mu}}{Cos\,\lambda\,.\,Sin\,\mu},\mu\right)$ (IV, 163).

28) $\int \frac{Sin\,x}{(Cos\,\lambda - Cos\,x)^{1-p}(Cos\,x - Cos\,\mu)^p} \frac{dx}{1-2r\,Cos\,x + r^2} = \frac{\pi}{(1-2r\,Cos\,\lambda + r^2)^{1-p}} \frac{Cosec\,p\pi}{(1-2r\,Cos\,\mu + r^2)^p}$
Enneper, Schl. Z. 7, 346.

F. Circulaire Directe. TABLE 74. Lim. diverses.

1) $\int_0^1 Sin\{p\sqrt{1-x^2}\}\,dx = \frac{1}{4}p\pi \sum_0^\infty \frac{(-p^2)^n}{2^{n/2}\,4^{n/2}}$ Lummel, Gr. 37, 349.

2) $\int_{\frac{\pi}{2}}^\infty Sin\left(qx^2 - q\pi x + \frac{1}{4}q\pi^2 + \frac{p^2}{q}\right).\,Sin\,2px\,dx = \frac{1}{2}Sin\,p\pi\,.\sqrt{\frac{\pi}{2q}}$ (VIII, 540).

3) $\int_{\frac{\pi}{2}}^\infty Sin\left(qx^2 - q\pi x + \frac{1}{4}q\pi^2 + \frac{p^2}{q}\right).\,Cos\,2px\,dx = \frac{1}{2}Cos\,p\pi\,.\sqrt{\frac{\pi}{2q}}$ (VIII, 540).

4) $\int_{\frac{\pi}{2}}^\infty Cos\left(qx^2 - q\pi x + \frac{1}{4}q\pi^2 + \frac{p^2}{q}\right).\,Sin\,2px\,dx = \frac{1}{2}Sin\,p\pi\,.\sqrt{\frac{\pi}{2q}}$ (VIII, 540).

5) $\int_{\frac{\pi}{2}}^\infty Cos\left(qx^2 - q\pi x + \frac{1}{4}q\pi^2 + \frac{p^2}{q}\right).\,Cos\,2px\,dx = \frac{1}{2}Cos\,p\pi\,.\sqrt{\frac{\pi}{2q}}$ (VIII, 540).

6) $\int_0^{\frac{1}{2}Arccos\,p} dx\sqrt{\frac{Cos\,2x - p}{Cos\,2x + 1}} = 2\pi\left\{1 - \sqrt{\frac{1+p}{2}}\right\}$ (IV, 158).

7) $\int_\lambda^{\frac{\pi}{2}} Sin\left\{(a+1)\left(\frac{1}{2}\pi - x\right)\right\}.\,Sin^{a-1}x\,dx = \frac{1}{a}\left[1 - Sin^a\lambda\,.\,Cos\left\{a\left(\frac{\pi}{2} - \lambda\right)\right\}\right]$

8) $\int_\lambda^{\frac{\pi}{2}} Cos\left\{(a+1)\left(\frac{1}{2}\pi - x\right)\right\}.\,Sin^{a-1}x\,dx = \frac{1}{a}Sin^a\lambda\,.\,Sin\left\{a\left(\frac{\pi}{2} - \lambda\right)\right\}$

Sur 7) et 8) voyez Lindmann, Gr. 38, 246.

9) $\int_{\lambda}^{\frac{\pi}{2}} dx \sqrt{1-p^2 \, Sin^2 x} = \mathrm{E}(p,\lambda) - \frac{p^2 \, Sin \lambda . Cos \lambda}{\sqrt{1-p^2 \, Sin^2 \lambda}}$

10) $\int_{\lambda}^{\frac{\pi}{2}} \sqrt{1-p^2 \, Sin^2 x} \, \frac{dx}{Sin^2 x} = Tg \lambda . \sqrt{1-p^2 \, Sin^2 \lambda} + (1-p^2) \mathrm{F}(p,\lambda) - \mathrm{E}(p,\lambda)$

Sur 9) et 10) voyez Catalan, L. 4, 323.

11) $\int_{\lambda}^{\frac{\pi}{2}} \frac{dx}{\sqrt{Sin x - Sin \lambda}} = \sqrt{2} . \mathrm{F}'\left(Sin \frac{\pi - 2\lambda}{4}\right)$ (VIII, 304).

12) $\int_{\lambda}^{\pi-\lambda} \frac{dx}{\sqrt{Sin x - Sin \lambda}} = 2\sqrt{2} . \mathrm{F}'\left(Sin \frac{\pi - 2\lambda}{4}\right)$ (VIII, 304).

F. Circ. Dir. Intégr. Limites [Lim. $k=\infty$]. TABLE 75. Lim. diverses.

1) $\int_0^{\frac{\pi}{2}} \frac{Sin \, q k x \, dx}{Tang \, x} = -q\pi \sum_1^{k-1} Cos \frac{1}{2} q n \pi . l \, Sin \frac{n\pi}{2k}$ (IV, 110*).

2) $\int_0^{\frac{\pi}{2}} \frac{Sin x . Sin \{(2k+1)x\}}{1-2p \, Cos 2x + p^2} dx = 0 \, [p^2 < 1], =$ 3) $\int \frac{Cos x . Cos\{(2k+1)x\} dx}{1-2p \, Cos 2x + p^2}$ (IV, 119, 120).

4) $\int_0^{\frac{\pi}{2}} Sin(k \, Sec x) \frac{dx}{\sqrt{Cos^3 x}} = (Cos k + Sin k) \sqrt{\frac{\pi}{4k}}$ (IV, 130).

5) $\int_0^{\frac{\pi}{2}} Cos(k \, Sec x) \frac{dx}{\sqrt{Cos^3 x}} = (Cos k - Sin k) \sqrt{\frac{\pi}{4k}}$ (IV, 130).

6) $\int_0^{\frac{1}{k}} \frac{Sin \, k^2 x}{Sin x} dx = \frac{1}{2}\pi$ (IV, 158).

7) $\int_0^a \frac{Sin \, k x \, dx}{Sin x} = \frac{1}{2}\pi \, [0 < a < \pi]$ (VIII, 380).

8) $\int_0^a \frac{Sin \, k x \, dx}{1-2p \, Cos x + p^2} = 0 =$ 9) $\int_0^a \frac{Cos \, k x \, dx}{1-2p \, Cos x + p^2} \, [0 < a < \infty]$ (VIII, 374).

10) $\int_0^a \frac{Sin \, k x . Sin x \, dx}{1-2p \, Cos x + p^2} = 0 =$ 11) $\int_0^a \frac{Cos \, k x . Cos x \, dx}{1-2p \, Cos x + p^2} \, [0 < a < \infty]$ (VIII, 374).

12) $\int_0^a \frac{Sin \, k x . Cos x \, dx}{1-2p \, Cos x + p^2} = 0 =$ 13) $\int_0^a \frac{Cos \, k x . Sin x \, dx}{1-2p \, Cos x + p^2} \, [0 < a < \infty]$ (VIII, 374).

14) $\int_0^a \frac{Sin \, k x}{1-2p \, Cos x + p^2} \frac{dx}{Cos x} = \frac{\pi}{2} \frac{1}{(1-p)^2} \, [0 < a < \pi]$ (VIII, 375).

15) $\int_0^a \frac{Sin \, 2kx}{1-2p \, Cos x + p^2} \frac{dx}{Sin x} = \frac{2p\pi}{(1-p^2)^2} \, [a=\pi], = \frac{2bp\pi}{(1-p^2)^2} \, [a = b\pi], = \frac{2bp\pi}{(1-p^2)^2} +$

$+ \frac{Cos \, b\pi}{(1-p \, Cos \, b\pi)^2} \left[\begin{matrix} a = b\pi + c, \\ c < \pi \end{matrix}\right]$ (VIII, 375).

16) $\int_0^a \frac{Sin\{(2k+1)x\}}{1-2p\,Cos\,x+p^2}\frac{dx}{Sin\,x}=\pi\frac{1+p^2}{(1-p^2)^2}[a=\pi],=b\pi\frac{1+p^2}{(1-p^2)^2}[a=b\pi],=b\pi\frac{1+p^2}{(1-p^2)^2}+$
$+\frac{1}{(1-p\,Cos\,b\pi)^2}\left[\begin{matrix}a=b\pi+c,\\c<\pi\end{matrix}\right]$ (VIII, 357).

17) $\int_0^a \frac{Cos\,2kx}{1-2p\,Cos\,x+p^2}\frac{dx}{Cos\,x}=0\left[0<a<\frac{\pi}{2}\right],=\infty\left[\frac{\pi}{2}<a<\infty\right]$ (VIII, 375).

18) $\int_0^a \frac{Cos\{(4k\pm1)x\}}{1-2p\,Cos\,x+p^2}\frac{dx}{Cos\,x}=\pm\frac{\pi}{2}\frac{1}{1+p^2}\left[a=\frac{1}{2}\pi\right],=\pm\frac{\pi}{1+p^2}\left[\frac{1}{2}\pi<a<\frac{3}{2}\pi\right],=$
$=\pm\frac{3}{2}\frac{\pi}{1+p^2}\left[a=\frac{3\pi}{2}\right],=\pm\frac{2b+1}{2}\frac{\pi}{1+p^2}\left[a=\frac{2b+1}{2}\pi\right],=\pm\frac{b\pi}{1+p^2}$
$\left[a=\frac{2b+1}{2}\pi+c,c<\pi\right]$ (VIII, 375).

19) $\int_0^a \frac{Sin\{(2k+1)x\}}{1-2p\,Cos\,x+p^2}Tang\,x\,dx=0\left[a<\frac{1}{2}\pi\right],=\infty\left[\frac{1}{2}\pi<a<\infty\right]$ (VIII, 376).

20) $\int_0^a \frac{Sin\{(\pm[4k+1]+1)x\}}{1-2p\,Cos\,x+p^2}Tang\,x\,dx=\frac{\pi}{2}\frac{1}{1-p^2}\left[a=\frac{1}{2}\pi\right],=\frac{\pi}{1-p^2}\left[\frac{1}{2}\pi<a<\frac{3\pi}{2}\right],=$
$=\frac{3\pi}{2}\frac{1}{1-p^2}\left[a=\frac{3\pi}{2}\right],=\frac{2b+1}{2}\frac{\pi}{1-p^2}\left[a=\frac{2b+1}{2}\pi\right],=\frac{b+1}{1-p^2}\pi\left[a=\frac{2b+1}{2}\pi+c,c<\pi\right]$
(VIII, 376).

F. Circulaire Inverse. TABLE 76. Lim. 0 et 1.

1) $\int Arcsin\,px\,dx=Arcsin\,p+\frac{1}{p}\sqrt{1-p^2}-\frac{1}{p}$ (VIII, 368).

2) $\int Arccos\,px\,dx=Arccos\,p+\frac{1}{p}-\frac{1}{p}\sqrt{1-p^2}$ V. T. 76, N. 1.

3) $\int Arctg\,px\,dx=Arctg\,p-\frac{1}{2p}l(1+p^2)$ (VIII, 368).

4) $\int Arccot\,px\,dx=Arccot\,p+\frac{1}{2p}l(1+p^2)$ V. T. 76, N. 3.

5) $\int Arcsin(xe^{pi})\,dx=Arcsin\left(\frac{Cos\,p}{\sqrt{1+Sin\,p}}\right)-Cos\,p+\left(Cos\frac{\pi+2p}{4}-i\,Sin\frac{\pi+2p}{4}\right)\sqrt{2\,Sin\,p}+$
$+i\,Sin\,p+i\,l\{\sqrt{Sin\,p}+\sqrt{1+Sin\,p}\}\left[p\leq\frac{1}{2}\pi\right]$ (IV, 163).

6) $\int Arctg(xe^{pi})\,dx=\frac{1}{4}\pi-p\,Sin\,p-\frac{1}{2}Cos\,p\,.\,l(2\,Cos\,p)+\frac{i}{4}\left\{l\frac{1+Sin\,p}{1-Sin\,p}+2\,Sin\,p\,.\,l(2\,Cos\,p)-\right.$
$\left.-4p\,Cos\,p\right\}\left[p^2\leq\frac{1}{4}\pi^2\right]$ (IV, 163).

7) $\int Arcsin(\sqrt{x})\,dx = \frac{\pi}{4} =$ 8) $\int Arccos(\sqrt{x})\,dx$ (IV, 164).

9) $\int (Arccot\,x)^2\,dx = \frac{1}{16}\pi^2 + \frac{3}{4}\pi\, l2 - \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 77, N. 3 et T. 78, N. 3.

10) $\int (Arccot\,x)^p\,dx = \left(\frac{\pi}{4}\right)^p + \frac{p}{2}\left(\frac{\pi}{4}\right)^{p-1} \left\{2^p - 1 - 2\sum_1^\infty \frac{2^{2m+p}-1}{p+2m-1}\sum_1^\infty \frac{1}{(4n)^{2m}}\right\}$
V. T. 77, N. 4 et T. 78, N. 4.

F. Circulaire Inverse. TABLE 77. Lim. 0 et ∞.

1) $\int Arctg\,px\,dx = \infty$ (VIII, 368) $=$ 2) $\int Arccot\,px\,dx$ V. T. 247, N. 2.

3) $\int (Arccot\,px)^2\,dx = \frac{\pi}{p}\, l2$ (VIII, 607).

4) $\int (Arccot\,x)^p\,dx = p\left(\frac{\pi}{2}\right)^{p-1}\left\{1 - \sum_1^\infty \frac{2}{p+2m-1}\sum_1^\infty \frac{1}{(2n)^{2m}}\right\}$ V. T. 248, N. 15.

5) $\int \left(Arctg\,\frac{(p-r)x}{1+prx^2}\right)^2 dx = \frac{2}{r}\, lp + \frac{2}{p}\, lr - 2\frac{p+r}{pr}\, l\frac{p+r}{2}$ (VIII, 606).

6) $\int Arctg\,px \,.\, Arccot\frac{x}{q}\,dx = \infty$ (VIII, 605).

7) $\int Arccot\,qx . Arccot\frac{x}{p}\,dx = \frac{\pi}{2}\left\{\frac{1+pq}{q}\, l(1+pq) - p\, lpq\right\}$ (VIII, 607).

8) $\int Arccot\,px . Arccot\,qx\,dx = \frac{\pi}{2}\left\{\frac{1}{p}\, l\left(1+\frac{p}{q}\right) + \frac{1}{q}\, l\left(1+\frac{q}{p}\right)\right\}$ (VIII, 607).

9) $\int Arctg\left\{\frac{(p-r)x}{1+prx^2}\right\} . Arctg\,qx\,dx = \infty =$ 10) $\int Arctg\left\{\frac{(p-r)x}{x^2+pr}\right\} . Arctg\,qx\,dx$ (VIII, 605).

11) $\int Arctg\left\{\frac{(p-r)x}{x^2+pr}\right\} . Arccot\,qx\,dx = \frac{\pi}{2}\left\{p\, l\frac{1+pq}{pq} - r\, l\frac{1+qr}{qr} + \frac{1}{q}\, l\frac{1+pq}{1+qr}\right\}$ (VIII, 607).

12) $\int Arctg\left\{\frac{(q-r)x}{1+qrx^2}\right\} . Arccot\frac{x}{p}\,dx = \frac{\pi}{2}\left\{p\, l\frac{q(1+pr)}{r(1+pq)} - \frac{1}{q}\, l(1+pq) + \frac{1}{r}\, l(1+pr)\right\}$ (VIII, 606).

13) $\int Arctg\left\{\frac{(p-r)x}{1+prx^2}\right\} . Arctg\left\{\frac{(q-s)x}{1+qsx^2}\right\} dx = \frac{\pi}{2}\left\{\frac{1}{p}\, l\frac{s(p+q)}{q(p+s)} + \frac{1}{q}\, l\frac{r(p+q)}{p(q+r)} + \frac{1}{r}\, l\frac{q(r+s)}{s(q+r)} + \frac{1}{s}\, l\frac{p(r+s)}{r(p+s)}\right\}$
(VIII, 606).

14) $\int Arctg\left\{\frac{(p-r)x}{x^2+pr}\right\} . Arctg\left\{\frac{(q-s)x}{1+qsx^2}\right\} dx = \frac{\pi}{2}\left\{p\, l\frac{q(1+ps)}{s(1+pq)} + r\, l\frac{s(1+qr)}{q(1+rs)} + \frac{1}{q}\, l\frac{1+qr}{1+pq} + \frac{1}{s}\, l\frac{1+ps}{1+rs}\right\}$
(VIII, 606).

F. Circulaire Inverse.	TABLE 78.	Lim. 1 et ∞.

1) $\int Arctg\, px\, dx = \infty =$ 2) $\int Arccot\, px\, dx$ V. T. 76, N. 3, 4 et T. 77, N. 1, 2.

3) $\int (Arccot\, x)^2\, dx = -\frac{\pi^2}{16} + \frac{\pi}{4} l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 253, N. 10.

4) $\int (Arccot\, x)^p\, dx = -\left(\frac{\pi}{4}\right)^p + \frac{1}{2} p \left(\frac{\pi}{4}\right)^{p-1} \left\{1 - \sum_1^\infty \frac{2}{p+2m-1} \sum_1^\infty \frac{1}{(4n)^{2m}}\right\}$ V. T. 253, N. 11.

5) $\int Arctg \frac{x}{q} . Arccosec\, x\, dx = \frac{1}{2} \pi q\, l \frac{1+\sqrt{1+q^2}}{\sqrt{1+q^2}} + \frac{\pi}{2} l \{q + \sqrt{1+q^2}\} - \frac{\pi}{2} Arctg\, q$

V. T. 235, N. 10 et T. 244, N. 11.

Autre Fonction.	TABLE 79.	Lim. diverses.

1) $\int_0^1 B'(x)\, dx = \frac{(-1)^{a-1}}{2a+2} B_{2a+1}$ (IV, 165). 2) $\int_0^1 B''(x)\, dx = 0$ (IV, 165).

3) $\int_0^1 \{B'(x)\}^2\, dx = \frac{1^{2a+1/1}}{(2a+2)^{2a+3/1}} B_{4a+2} + \left(\frac{1}{2a+2} B_{2a+1}\right)^2$ (IV, 165).

4) $\int_0^1 \{B''(x)\}^2\, dx = \frac{1^{2a/1}}{(2a+1)^{2a+2/1}} B_{4a+1}$ (IV, 165).

5) $\int_0^1 dx\, li(x) = -l2$ V. T. 283, N. 4.

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F. Algébrique; Exponentielle.	TABLE 80.	Lim. 0 et 1.

1) $\int e^{qx}\, x\, dx = \frac{1}{q^2}\left\{(q-1)e^q + 1\right\}$ (VIII, 362*).

2) $\int e^{-qx}\, x^a\, dx = \frac{1^{a|1}}{q^{a+1}}(1-e^{-q}) - e^{-q}\sum_1^a a^{n|-1}\frac{1}{q^n}$ (VIII, 364).

3) $\int e^{-\frac{1}{4}\pi^2 x^2}\, x^{2a}\, dx = \sum_0^\infty \frac{1}{(2a+2n+1)\,1^{n|1}}\left(\frac{-\pi^2}{4}\right)^n$ V. T. 399, N. 20.

4) $\int (e^{px} - e^{-px})\, e^{-qx}\frac{dx}{x} = \frac{1}{2}\, l\left(\frac{q+p}{q-p}\right)^2 + Ei(p-q) - Ei\left\{-(p+q)\right\}$ (IV, 213*).

5) $\int e^{-px^2}\frac{dx}{1+x^2} = \frac{1}{2}\pi e^p - \sum_1^\infty \frac{p^n}{1^{n|1}}\sum_1^n \frac{(-1)^{m-1}}{2m-1}$ Raabe, Cr. 48, 137.

6) $\int \frac{e^x\, x\, dx}{(1+x)^2} = \frac{1}{2}e - 1$ (VIII, 214).

7) $\int \left(e^{1-\frac{1}{x}} - x^q\right)\frac{dx}{x(1-x)} = Z'(q)$ (IV, 169).

8) $\int \left(\frac{b e^{1-x^{-b}}}{1-x^b} - \frac{x^{bq}}{1-x}\right)\frac{dx}{x} = \frac{1}{b}\sum_1^b Z'\left(q + \frac{n-1}{n}\right)$ (IV, 169).

9) $\int \left(\frac{b e^{1-x^{-b}}}{1-x^b} - \frac{e^{1-\frac{1}{x}}}{1-x}\right)\frac{dx}{x} = -lb$ (IV, 169*).

10) $\int \left(\frac{b e^{1-\frac{1}{x}}}{1-x} - \frac{x^q}{1-\sqrt[b]{x}}\right)\frac{dx}{x} = \sum_1^b Z'\left(q + \frac{n-1}{n}\right)$ (IV, 169).

11) $\int \frac{x}{\sqrt{e^{2q} + e^{-2q} - e^{2qx} - e^{-2qx}}}\frac{dx}{e^{qx} - e^{-qx}} = \frac{\pi}{4q^2}\frac{1}{e^q - e^{-q}}\, Arcsin\left(\frac{e^q - e^{-q}}{e^q + e^{-q}}\right)$ V. T. 142, N. 11.

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1) $\int e^{-qx} x^{p-1}\, dx = \frac{1^{p-1|1}}{q^p} = \frac{\Gamma(p)}{q^p}$ [$p > -1$, q aussi imaginaire] (VIII, 439).

2) $\int e^{\pm xi} x^{p-1}\, dx = e^{\pm\frac{1}{2}p\pi i}\, \Gamma(p)$ [$p < 1$] (VIII, 287).

3) $\int e^{-(p+qi)x} x^a\, dx = \frac{1^{a|1}}{(p+qi)^{a+1}}$ (VIII, 247).

4) $\int e^{-px}(1-e^{-qx})^a x^b\, dx = (-1)^b\, 1^{b|1} \sum_0^a \binom{a}{n} \frac{(-1)^n}{(p+nq)^{b+1}}$ V. T. 107, N. 7.

5) $\int e^{-px^2} x\, dx = \frac{1}{2p}$ (VIII, 246).

6) $\int e^{-px^2} x^{2a}\, dx = \frac{1^{a|2}}{(2p)^a} \frac{1}{2}\sqrt{\frac{\pi}{p}}$ (VIII, 247)

7) $\int e^{-px^2} x^{2a+1}\, dx = \frac{1^{a|1}}{2p^{a+1}}$ (VIII, 246)

[6) et 7): p aussi imaginaire].

8) $\int e^{-x^q} x^p\, dx = \frac{1}{q}\Gamma\left(\frac{p+1}{q}\right)$ (IV, 172).

9) $\int e^{-x} x^a (x+r)^a\, dx = 1^{a|1}\{r+(a+1)^{1|1}\}^a$ [Après le développement changez $\{(a+1)^{1|1}\}^n$ en $(a+1)^{n|1}$.]

Malmsten, Handl. Stockh., 1841.

10) $\int e^{-q\left(x^2+\frac{1}{x^2}\right)} x^{2a}\, dx = \frac{1}{2} e^{-2q} \sqrt{\frac{\pi}{q}} . \sum_0^{a+1} \frac{(a-n+1)^{2n|1}}{2^n\, 1^{n|1}} \left(\frac{1}{2q}\right)^n$ (VIII, 433).

11) $\int e^{-x^{\frac{2a}{1+2b}}} x^{a-1}\, dx = \frac{2b+1}{a\,.\,2^{b+1}} 1^{b|2} \sqrt{\pi}$ (IV, 173).

12) $\int (e^{px} - e^{-px}) e^{-q^2x^2} x\, dx = p e^{\frac{p^2}{4q^2}} \frac{\sqrt{\pi}}{2q^3}$ (VIII, 570).

13) $\int (e^{-x}-1)^a e^{-px} x^{b-1}\, dx = 1^{b|1} \Delta^a (p^{-b})$ (IV, 173).

14) $\int \{e^{-x}x^{q-1} - e^{-px}(1-e^{-x})^{q-1}\}\, dx = \frac{\Gamma(p+q) - \Gamma(p)}{q} \frac{\Gamma(1+q)}{\Gamma(p+q)}$ (IV, 170).

1) $\int\frac{xe^{-x}\,dx}{e^x-1}=\frac{1}{6}\pi^2-1$ V. T. 108, N. 7.

2) $\int\frac{xe^{-2x}\,dx}{e^{-x}+1}=1-\frac{1}{12}\pi^2$ V. T. 108, N. 2.

3) $\int\frac{xe^{-3x}\,dx}{e^{-x}+1}=\frac{1}{12}\pi^2-\frac{3}{4}$ V. T. 108, N. 3.

4) $\int\frac{e^{-2ax}\,x\,dx}{1+e^{-x}}=\frac{1}{12}\pi^2+\sum_1^{2a}\frac{(-1)^n}{n^2}$ V. T. 108, N. 4.

5) $\int\frac{e^{-2ax}\,x\,dx}{1+e^{x}}=-\frac{1}{12}\pi^2+\sum_1^{2a-1}\frac{(-1)^{n-1}}{n^2}$ V. T. 108, N. 5.

6) $\int\frac{1+e^{-x}}{e^x-1}\,x\,dx=\frac{1}{3}\pi^2-1$ V. T. 108, N. 9.

7) $\int\frac{1-e^{-x}}{1-e^{-3x}}\,e^{-x}\,x\,dx=\frac{2}{27}\pi^2$ V. T. 113, N. 1.

8) $\int\frac{e^{-qx}+e^{(q-p)x}}{1-e^{-px}}\,x\,dx=\left(\frac{\pi}{p}\,Cosec\frac{q\pi}{p}\right)^2$ V. T. 108, N. 15.

9) $\int\frac{e^{-ax}}{1-e^{-x}}\,x^2\,dx=2\sum_a^\infty\frac{1}{n^3}$ V. T. 109, N. 2.

10) $\int\frac{e^{-ax}}{1+e^{-x}}\,x^2\,dx=(-1)^a\sum_a^\infty\frac{(-1)^n}{n^3}$ V. T. 109, N. 1.

11) $\int\frac{e^{-qx}-e^{(q-p)x}}{1-e^{-px}}\,x^2\,dx=2\left(\frac{\pi}{p}\,Cosec\frac{q\pi}{p}\right)^3.\,Cos\frac{q\pi}{p}$ V. T. 109, N. 8*.

12) $\int\frac{e^{-ax}}{1-e^{-x}}\,x^3\,dx=\frac{1}{15}\pi^4-6\sum_1^{a-1}\frac{1}{n^4}$ V. T. 109, N. 12.

13) $\int\frac{e^{-ax}}{1+e^{-x}}\,x^3\,dx=(-1)^a\sum_a^\infty\frac{(-1)^n}{n^4}$ V. T. 109, N. 10.

14) $\int\frac{e^{-qx}-e^{(q-p)x}}{1+e^{-px}}\,x^3\,dx=\left(\frac{\pi}{p}\,Cosec\frac{q\pi}{p}\right)^4.Cos\frac{q\pi}{p}.\left(6-Sin^2\frac{q\pi}{p}\right)$ V. T. 109, N. 15.

15) $\int\frac{e^{-qx}+e^{(q-p)x}}{1-e^{-px}}\,x^3\,dx=2\left(\frac{\pi}{p}\,Cosec\frac{q\pi}{p}\right)^4.\left(1+2\,Cos^2\frac{q\pi}{p}\right)$ V. T. 109, N. 16.

16) $\int\frac{e^{-qx}+e^{(q-p)x}}{1+e^{-px}}\,x^4\,dx=\left(\frac{\pi}{p}\,Cosec\frac{q\pi}{p}\right)^5.\left(24-20\,Sin^2\frac{q\pi}{p}+Sin^4\frac{q\pi}{p}\right)$ V. T. 109, N. 18.

17) $\int\frac{e^{-qx}-e^{(q-p)x}}{1-e^{-px}}\,x^4\,dx=8\left(\frac{\pi}{p}\,Cosec\frac{q\pi}{p}\right)^5.Cos\frac{q\pi}{p}.\left(2+Cos^2\frac{q\pi}{p}\right)$ V. T. 109, N. 19.

18) $\int \frac{e^{-qx} - e^{(q-p)x}}{1+e^{-px}} x^5 dx = \left(\frac{\pi}{p} Cosec \frac{q\pi}{p}\right)^6 . Cos \frac{q\pi}{p} . \left(120 - 60 Sin^2 \frac{q\pi}{p} + Sin^4 \frac{q\pi}{p}\right)$ V. T. 109, N. 23.

19) $\int \frac{e^{-qx} + e^{(q-p)x}}{1-e^{-px}} x^5 dx = 8 \left(\frac{\pi}{p} Cosec \frac{q\pi}{p}\right)^6 . \left(15 - 15 Sin^2 \frac{q\pi}{p} + 2 Sin^4 \frac{q\pi}{p}\right)$ V. T. 109, N. 24.

20) $\int \frac{e^{-qx} + e^{(q-p)x}}{1+e^{-px}} x^6 dx = \left(\frac{\pi}{p} Cosec \frac{q\pi}{p}\right)^7 . \left(720 - 840 Sin^2 \frac{q\pi}{p} + 182 Sin^4 \frac{q\pi}{p} - Sin^6 \frac{q\pi}{p}\right)$
V. T. 109, N. 26.

21) $\int \frac{e^{-qx} - e^{(q-p)x}}{1-e^{-px}} x^6 dx = 16 \left(\frac{\pi}{p} Cosec \frac{q\pi}{p}\right)^7 . Cos \frac{q\pi}{p} . \left(45 - 30 Sin^2 \frac{q\pi}{p} + 2 Sin^4 \frac{q\pi}{p}\right)$ V. T. 109, N. 27.

22) $\int \frac{e^{-qx} - e^{(q-p)x}}{1+e^{-px}} x^7 dx = \left(\frac{\pi}{p} Cosec \frac{q\pi}{p}\right)^8 . Cos \frac{q\pi}{p} . \left(5040 - 4200 Sin^2 \frac{q\pi}{p} + 546 Sin^4 \frac{q\pi}{p} - Sin^6 \frac{q\pi}{p}\right)$
V. T. 109, N. 31.

23) $\int \frac{e^{-qx} + e^{(q-p)x}}{1-e^{-px}} x^7 dx = 16 \left(\frac{\pi}{p} Cosec \frac{q\pi}{p}\right)^8 . \left(315 - 420 Sin^2 \frac{q\pi}{p} + 126 Sin^4 \frac{q\pi}{p} - 4 Sin^6 \frac{q\pi}{p}\right)$
V. T. 109, N. 32.

24) $\int \frac{e^{-qx} - e^{(q-p)x}}{1-e^{-px}} x^8 dx = 128 \left(\frac{\pi}{p} Cosec \frac{q\pi}{p}\right)^9 . Cos \frac{q\pi}{p} . \left(315 - 315 Sin^2 \frac{q\pi}{p} + 63 Sin^4 \frac{q\pi}{p} - Sin^6 \frac{q\pi}{p}\right)$
V. T. 109, N. 33.

F. Alg. rat. ent. mon. x^a pour a général; Exp. binôme $e^{ax} \pm 1$ en dén. TABLE 83. Lim. 0 et ∞.

1) $\int \frac{x^{2a} dx}{e^{qx}+1} = \frac{2^{2a}-1}{2^{2a} q^{2a+1}} 1^{2a|1} \sum_1^\infty \frac{1}{n^{2a+1}}$ V. T. 110, N. 1*.

2) $\int \frac{x^{2a-1} dx}{e^{qx}+1} = \frac{2^{2a-1}-1}{2a . q^{2a}} \pi^{2a} B_{2a-1}$ (VIII, 556*).

3) $\int \frac{x^{2a} dx}{e^{qx}-1} = \frac{1^{2a|1}}{q^{2a+1}} \sum_1^\infty \frac{1}{n^{2a+1}}$ V. T. 110, N. 6*.

4) $\int \frac{x^{2a-1} dx}{e^{qx}-1} = \frac{2^{2a-1} \pi^{2a}}{a q^{2a}} B_{2a-1}$ (VIII, 556*).

5) $\int \frac{x^{p-1} dx}{e^{rx}-q} = \frac{1}{q r^p} \Gamma(p) \sum_1^\infty \frac{q^n}{n^p}$ (IV, 174).

6) $\int \frac{x^{p-1} dx}{e^{qx}+1} = \frac{\Gamma(p)}{q^p} \sum_0^\infty \frac{(-1)^n}{(n+1)^p}$ V. T. 110, N. 3*.

7) $\int \frac{x^{p-1} dx}{e^{qx}-1} = \frac{\Gamma(p)}{q^p} \sum_0^\infty \frac{1}{(n+1)^p}$ V. T. 110, N. 6*.

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F. Alg. rat. ent. mon. x^a pour a général; Exp. binôme $e^{qx} \pm 1$ en dén.	TABLE 83, suite.	Lim. 0 et ∞.

8) $\int \frac{1-e^{-bx}}{1-e^x} x^{a-1}\,dx = -1^{a/1} \sum_1^b \frac{1}{n^a}$ V. T. 110, N. 9.

9) $\int \frac{e^{-qx}}{1+e^x} x^{a-1}\,dx = \Gamma(a) \sum_1^\infty \frac{(-1)^{n-1}}{(q+n)^a}$ V. T. 110, N. 4.

10) $\int \frac{e^{-qx}}{1-e^x} x^{a-1}\,dx = -\Gamma(a) \sum_1^\infty \frac{1}{(q+n)^a}$ V. T. 110, N. 7.

11) $\int \frac{e^{qx}+1}{e^{qx}-1} x^{2a-1}\,dx = \frac{2^{2a-1}}{a} \mathrm{B}_{2a-1} \left(\frac{\pi}{q}\right)^{2a}$ (VIII, 555*).

12) $\int \frac{e^{px}+e^{-px}}{e^{qx}-1} x^{2a-1}\,dx = \sum_a^\infty \frac{(2\pi)^{2n}}{2n} \frac{1}{1^{2n-2a/1}} \left(\frac{p}{q}\right)^{2n-2a} \mathrm{B}_{2n-1}$ (VIII, 578*).

13) $\int e^{-px}(e^{-x}-1)^c \left(p+\frac{ce^{-x}}{e^{-x}-1}\right) x^q\,dx = \Gamma(q)\,\Delta^c\,(p^{-q})$ (IV, 176).

F. Alg. rat. ent. monôme; Exp. bin. $e^{ax} \pm e^{-ax}$ en dén.	TABLE 84.	Lim. 0 et ∞.

1) $\int \frac{x\,dx}{e^x+e^{-x}} = \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 108, N. 10.

2) $\int \frac{x\,dx}{e^x-e^{-x}} = \frac{1}{8}\pi^2$ V. T. 108, N. 11.

3) $\int \frac{x^2\,dx}{e^x+e^{-x}} = \frac{1}{16}\pi^3$ V. T. 109, N. 3.

4) $\int \frac{e^{-2nx}}{e^x-e^{-x}} x^2\,dx = 2\sum_n^\infty \frac{1}{(2n+1)^3}$ V. T. 109, N. 4.

5) $\int \frac{x^3\,dx}{e^x-e^{-x}} = \frac{1}{16}\pi^4$ V. T. 109, N. 13.

6) $\int \frac{e^{-2nx}}{e^x-e^{-x}} x^3\,dx = \frac{1}{16}\pi^4 - 6\sum_1^n \frac{1}{(2n-1)^4}$ V. T. 109, N. 14.

7) $\int \frac{x^4\,dx}{e^x+e^{-x}} = \frac{5}{64}\pi^5$ V. T. 109, N. 17.

8) $\int \frac{x^5\,dx}{e^x-e^{-x}} = \frac{1}{8}\pi^6$ V. T. 109, N. 22.

9) $\int \frac{x^6\,dx}{e^x+e^{-x}} = \frac{61}{256}\pi^7$ V. T. 109, N. 25.

10) $\int \frac{x^7\,dx}{e^x-e^{-x}} = \frac{17}{32}\pi^8$ V. T. 109, N. 30.

11) $\int \frac{x^q\,dx}{e^x+e^{-x}} = \Gamma(q+1)\sum_0^\infty \frac{(-1)^n}{(2n+1)^{q+1}}$ (VIII, 474).

12) $\int \frac{x^{2a}\,dx}{e^{px}+e^{-px}} = \frac{1}{2}\left(\frac{\pi}{2p}\right)^{2a+1} \mathrm{B}_{2a}$ (VIII, 555*).

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F. Alg. rat. ent. monôme; Exp. bin. $e^{ax} \pm e^{-ax}$ en dén. — **TABLE 84, suite.** — Lim. 0 et ∞.

13) $\int \frac{x^{2a}\,dx}{e^{px}-e^{-px}} = \frac{2^{2a+1}-1}{(2p)^{2a+1}} 1^{2a/1} \sum_1^\infty \frac{1}{n^{2a+1}}$ V. T. 110, N. 12.

14) $\int \frac{x^{2a-1}\,dx}{e^{px}-e^{-px}} = \frac{2^{2a}-1}{4a} \left(\frac{\pi}{p}\right)^{2a} B_{2a-1}$ (VIII, 556*).

15) $\int \frac{e^{qx}-e^{-qx}}{e^{px}+e^{-px}} x\,dx = \frac{\pi^2}{4p^2} \mathit{Sin}\frac{q\pi}{2p} . \mathit{Sec}^2 \frac{q\pi}{2p}$ $[p>q]$ V. T. 112, N. 3.

16) $\int \frac{e^{qx}+e^{-qx}}{e^{px}-e^{-px}} x\,dx = \frac{\pi^2}{4p^2} \mathit{Sec}^2 \frac{q\pi}{2p}$ $[p>q]$ V. T. 112, N. 4.

17) $\int \frac{e^{qx}+e^{-qx}}{e^{px}+e^{-px}} x^2\,dx = \frac{\pi^3}{8p^3} \left(2\,\mathit{Sec}^3 \frac{q\pi}{2p} - \mathit{Sec}\frac{q\pi}{2p}\right)$ $[p>q]$ V. T. 109, N. 7.

18) $\int \frac{e^{qx}-e^{-qx}}{e^{px}-e^{-px}} x^2\,dx = \frac{\pi^3}{4p^3} \mathit{Sin}\frac{q\pi}{2p} . \mathit{Sec}^3 \frac{q\pi}{2p}$ $[p>q]$ V. T. 109, N. 8.

F. Alg. rat. ent. monôme; Exp. bin. $(e^{ax} \pm 1)^2$ en dén. — **TABLE 85.** — Lim. 0 et ∞.

1) $\int \frac{1+(-1)^a e^{-ax}}{(1+e^{-x})^2} e^{-x} x\,dx = \frac{1}{12} a\pi^2 + \sum_1^{a-1} (-1)^n \frac{a-n}{n^2}$ V. T. 111, N. 2.

2) $\int \frac{1-e^{-2ax}}{(1-e^{-2x})^2} x\,dx = \frac{1}{8} a\pi^2 - \sum_1^{a-1} \frac{a-n}{(2n-1)^2}$ V. T. 111, N. 5.

3) $\int \frac{1-e^{-ax}}{(1-e^{-x})^2} e^{-x} x\,dx = \frac{1}{6} a\pi^2 - \sum_1^{a-1} \frac{a-n}{n^2}$ V. T. 111, N. 3.

4) $\int \frac{1+(-1)^a e^{-ax}}{(1+e^{-x})^2} e^{-x} x^2\,dx = 2a \sum_a^\infty \frac{(-1)^{n-1}}{n^3} + 2 \sum_1^{a-1} \frac{(-1)^{n-1}}{n^2}$ V. T. 111, N. 7.

5) $\int \frac{1-e^{-ax}}{(1-e^{-x})^2} e^{-x} x^2\,dx = 2a \sum_a^\infty \frac{1}{n^3} + 2 \sum_1^{a-1} \frac{1}{n^2}$ V. T. 111, N. 8.

6) $\int \frac{1-e^{-2ax}}{(1-e^{-2x})^2} e^{-x} x^3\,dx = -\frac{1}{16}\pi^4 + 6 \sum_1^{a-1} \frac{1}{(2n-1)^4}$ V. T. 111, N. 9.

7) $\int \frac{e^x - e^{-x} + 2}{(e^x-1)^2} x^2\,dx = \frac{2}{3}\pi^2 - 2$ V. T. 82, N. 6.

8) $\int \frac{1+(-1)^a e^{-ax}}{(1+e^{-x})^2} e^{-x} x^3\,dx = \frac{7}{120} a\pi^4 + 6 \sum_1^{a-1} (-1)^n \frac{a-n}{n^4}$ V. T. 111, N. 10.

9) $\int \frac{1-e^{-ax}}{(1-e^{-x})^2} e^{-x} x^3\,dx = \frac{1}{15} a\pi^4 - 6 \sum_1^{a-1} \frac{a-n}{n^4}$ V. T. 111, N. 11.

10) $\int \frac{1-e^{-2ax}}{(1-e^{-2x})^2} e^{-x} x^3 dx = \frac{1}{16} a\pi^4 - 6 \sum_1^{a-1} \frac{a-n}{(2n-1)^4}$ V. T. 111, N. 12.

11) $\int \frac{e^{qx} x^p dx}{(1+e^{qx})^2} = \frac{\Gamma(p+1)}{q^{p+1}} \sum_0^\infty \frac{(-1)^n}{(1+n)^p}$ V. T. 83, N. 6.

12) $\int \frac{e^{qx} x^p dx}{(1-e^{qx})^2} = \frac{\Gamma(p+1)}{q^{p+1}} \sum_0^\infty \frac{1}{(1+n)^p}$ V. T. 83, N. 7.

13) $\int \frac{e^{-rx} x^q dx}{(1-pe^{-rx})^2} = \frac{\Gamma(q+1)}{pr^{q+1}} \sum_1^\infty \frac{p^n}{n^q}$ V. T. 83, N. 5.

14) $\int \frac{(1+q)e^x + q}{(1+e^x)^2} e^{-qx} x^a dx = \Gamma(a+1) \sum_1^\infty \frac{(-1)^n}{(q+n)^a}$ V. T. 83, N. 9.

15) $\int \frac{(1+q)e^x - q}{(1-e^x)^2} e^{-qx} x^a dx = \Gamma(a+1) \sum_0^\infty \frac{1}{(q+n)^a}$ V. T. 83, N. 10.

F. Alg. rat. ent. monôme; Exp. bin. $(e^{ax} \pm e^{-ax})^2$ en dén. TABLE 86. Lim. 0 et ∞.

1) $\int \frac{x\,dx}{(e^{qx}+e^{-qx})^2} = \frac{1}{4q^2} l2$ (IV, 180).

2) $\int \frac{x^{2a} dx}{(e^{qx}+e^{-qx})^2} = \frac{2^{2a-1}-1}{(2q)^{2a+1}} \pi^{2a} B_{2a-1}$ (VIII, 590*).

3) $\int \frac{x^{2a+1} dx}{(e^{qx}+e^{-qx})^2} = \frac{2^{2a}-1}{q(4q)^{2a+1}} 1^{2a+1/1} \sum_1^\infty \frac{1}{n^{2a+1}}$ V. T. 83, N. 1.

4) $\int \frac{x^{2a+1} dx}{(e^{qx}-e^{-qx})^2} = \frac{1^{2a+1/1}}{(2q)^{2a+2}} \sum_1^\infty \frac{1}{n^{2a+1}}$ V. T. 83, N. 3.

5) $\int \frac{x^{2a} dx}{(e^{qx}-e^{-qx})^2} = \frac{\pi^{2a}}{4q^{2a+1}} B_{2a-1}$ (VIII, 590*).

6) $\int \frac{x^p dx}{(e^{qx}+e^{-qx})^2} = \frac{\Gamma(p+1)}{(2q)^{p+1}} \sum_0^\infty \frac{(-1)^n}{(n+1)^p}$ V. T. 83, N. 6.

7) $\int \frac{x^p dx}{(e^{qx}-e^{-qx})^2} = \frac{\Gamma(p+1)}{(2q)^{p+1}} \sum_0^\infty \frac{1}{(n+1)^p}$ V. T. 83, N. 7.

8) $\int \frac{e^{qx}-e^{-qx}}{(e^{qx}+e^{-qx})^2} x\,dx = \frac{\pi}{4q^2}$ V. T. 27, N. 2.

9) $\int \frac{e^{qx}-e^{-qx}}{(e^{qx}+e^{-qx})^{p+1}} x\,dx = \frac{\Gamma(p)\sqrt{\pi}}{2^{2p+1} pq^2 \Gamma(p+\frac{1}{2})}$ V. T. 27, N. 17.

10) $\int \frac{e^{qx} - e^{-qx}}{(e^{qx} + e^{-qx})^2} x^2 \, dx = \frac{1}{4q^3} l2$ V. T. 86, N. 1.

11) $\int \frac{e^{qx} + e^{-qx}}{(e^{qx} - e^{-qx})^2} x^2 \, dx = \frac{\pi^2}{4q^3}$ V. T. 84, N. 14.

12) $\int \frac{e^{qx} - e^{-qx}}{(e^{qx} + e^{-qx})^2} x^{2a+1} \, dx = \frac{2a+1}{2q} \left(\frac{\pi}{2q}\right)^{2a+1} B_{2a}$ V. T. 84, N. 12.

13) $\int \frac{e^{qx} + e^{-qx}}{(e^{qx} - e^{-qx})^2} x^{2a+1} \, dx = \frac{2^{2a+1} - 1}{q(2q)^{2a+1}} 1^{2a+1/1} \sum_1^\infty \frac{1}{n^{2a+1}}$ V. T. 84, N. 13.

14) $\int \frac{e^{qx} + e^{-qx}}{(e^{qx} - e^{-qx})^2} x^{2a} \, dx = \frac{2^{2a} - 1}{2q} \left(\frac{\pi}{q}\right)^{2a} B_{2a-1}$ V. T. 84, N. 14.

15) $\int \frac{e^{x} - e^{-x}}{(e^{x} + e^{-x})^2} x^p \, dx = \Gamma(p+1) \sum_0^\infty \frac{(-1)^n}{(2n+1)^p}$ V. T. 84, N. 11.

F. Alg. rat. ent. binôme; Exp. binôme en dén. | TABLE 87. | Lim. 0 et ∞.

1) $\int \frac{(1+xi)^{2a} - (1-xi)^{2a}}{i} \frac{dx}{e^{\pi x} + 1} = \frac{1}{2a+1}$ (IV, 181).

2) $\int \frac{(1+xi)^{2a-1} - (1-xi)^{2a-1}}{i} \frac{dx}{e^{\pi x} + 1} = \frac{1}{2a} \{1 + (-1)^a 2^{2a} B_{2a-1}\}$ (IV, 181).

3) $\int \frac{(1+xi)^{2a-1} - (1-xi)^{2a-1}}{i} \frac{dx}{e^{\pi x} - 1} = \frac{2a-1}{4a} + (-1)^a \frac{2^{2a-1} - 1}{2a} B_{2a-1}$ (VIII, 579).

4) $\int \frac{(1+xi)^{2a} - (1-xi)^{2a}}{i} \frac{dx}{e^{2\pi x} - 1} = \frac{1}{2} \frac{2a-1}{2a+1}$ (IV, 181).

5) $\int \frac{(1+xi)^{2a-1} - (1-xi)^{2a-1}}{i} \frac{dx}{e^{2\pi x} - 1} = \frac{a-1}{2a} + (-1)^{a-1} \frac{1}{2a} B_{2a-1}$ (VIII, 579).

6) $\int \frac{(1+xi)^{2a-1} + (1-xi)^{2a-1}}{e^{\frac{1}{2}\pi x} + e^{-\frac{1}{2}\pi x}} dx = (-1)^{a-1} \frac{2^{2a} - 1}{2a} 2^{2a} B_{2a-1}$ (IV, 182).

7) $\int \frac{(1+xi)^{2a} - (1-xi)^{2a}}{i} \frac{dx}{e^{\frac{1}{2}\pi x} - e^{-\frac{1}{2}\pi x}} = (-1)^{a+1} B_{2a} + 1$ (IV, 181).

8) $\int \frac{(1+xi)^{2a-1} - (1-xi)^{2a-1}}{i} \frac{dx}{e^{\frac{1}{2}\pi x} - e^{-\frac{1}{2}\pi x}} = 1$ (IV, 182).

1) $\int \frac{x\,dx}{e^x + e^{-x} - 1} = \frac{4}{27}\pi^2$ V. T. 113, N. 3.

2) $\int \frac{x e^{-x}\,dx}{e^x + e^{-x} - 1} = \frac{5}{108}\pi^2$ V. T. 113, N. 4.

3) $\int \frac{x^2\,dx}{e^x + e^{-x} + 2\,Cos\,\lambda} = \frac{1}{6}\lambda\,Cosec\,\lambda\,.\,(\pi^2 - \lambda^2)$ V. T. 113, N. 7.

4) $\int \frac{x^4\,dx}{e^x + e^{-x} + 2\,Cos\,\lambda} = \frac{1}{30}\lambda\,Cosec\,\lambda\,.\,(\pi^2 - \lambda^2)(7\pi^2 - 3\lambda^2)$ V. T. 113, N. 8.

5) $\int \frac{x^{2a}\,dx}{e^x + e^{-x} - 2\,Cos\,2p\pi} = 1^{2a|1}\,Cosec\,2p\pi\,.\,\sum_1^\infty \frac{Sin\,2np\pi}{n^{2a+1}}$ (VIII, 475).

6) $\int \frac{Cos\,2p\pi - e^{-x}}{e^x + e^{-x} - 2\,Cos\,2p\pi} x^{2a+1}\,dx = 1^{2a+1|1} \sum_1^\infty \frac{Cos\,2np\pi}{n^{2a+2}}$ (VIII, 476).

7) $\int \frac{1 + pe^{-x}}{e^x + e^{-x} + 1} x\,dx = \frac{4+p}{54}\pi^2$ V. T. 113, N. 1, 2.

8) $\int \frac{e^x\,Cos\,\lambda - 1}{e^{2x} + 1 - 2e^x\,Cos\,\lambda} x\,dx = \frac{1}{6}\pi^2 - \frac{1}{2}\pi\lambda + \frac{1}{4}\lambda^2$ (IV, 183).

9) $\int \frac{e^x - e^{-x}}{e^{2x} + e^{-2x} + 2p} x\,dx = \frac{\pi}{2\sqrt{2(p-1)}}\, l\, \frac{\sqrt{p-1} + \sqrt{p+1} - \sqrt{2}}{\sqrt{p-1} - \sqrt{p+1} + \sqrt{2}}\ [p^2 > 1], = \frac{1}{8}\pi\,Arccos\,p\,.\,\sqrt{\frac{2}{1-p}}\ [p^2 < 1]$ (IV, 183).

10) $\int \frac{Cos\,\lambda - pe^{-x}}{e^x + p^2 e^{-x} - 2p\,Cos\,\lambda} e^{(1-q)x} x^{r-1}\,dx = \Gamma(r) \sum_1^\infty \frac{p^{n-1}\,Cos\,n\lambda}{(q+n-1)^r}$ V. T. 113, N. 11.

11) $\int \frac{e^{qx} - e^{-qx}}{(e^{qx} - 2\,Cos\,\lambda + e^{-qx})^2} x\,dx = \frac{1}{2q^2}\lambda\,Cosec\,\lambda$ V. T. 27, N. 22.

12) $\int \frac{e^x - e^{-x}}{(e^x + e^{-x} - 1)^2} x^2\,dx = \frac{8}{27}\pi^2$ V. T. 88, N. 1.

13) $\int \frac{e^x - e^{-x}}{(e^x + e^{-x} + 2\,Cos\,\lambda)^2} x^3\,dx = \frac{1}{2}\lambda\,Cosec\,\lambda\,.\,(\pi^2 - \lambda^2)$ V. T. 88, N. 8.

14) $\int \frac{e^x - e^{-x}}{(e^x + e^{-x} - 2\,Cos\,2p\pi)^2} x^{2a+1}\,dx = 1^{2a+1|1}\,Cosec\,2p\pi\,.\,\sum_1^\infty \frac{Sin\,2np\pi}{n^{2a+1}}$ V. T. 88, N. 5.

15) $\int \frac{(1+xi)^{2a-1}\{e^{p(i-x)} + e^{p(x-i)}\} - (1-xi)^{2a-1}\{e^{p(x+i)} + e^{-p(x+i)}\}}{i} \frac{dx}{e^{\pi x} - 1} =$
$= (-1)^a \sum_a^\infty \left\{\frac{2^{2n-1} - 1}{n} B_{2n-1} + (-1)^n \frac{2n-1}{2n}\right\} \frac{p^{2n-2a}}{1^{2n-2a|1}}$ (VIII, 578).

16) $\int \frac{(1+xi)^{2a-1}\{e^{p(i-x)} + e^{p(x-i)}\} - (1-xi)^{2a-1}\{e^{p(x+i)} + e^{-p(x+i)}\}}{i} \frac{dx}{e^{2\pi x} - 1} =$
$= (-1)^a \sum_a^\infty \left\{\frac{1}{n} B_{2n-1} + (-1)^{n-1} \frac{n-1}{n}\right\} \frac{p^{2n-2a}}{1^{2n-2a|1}}$ (VIII, 578).

1) $\int e^{-q^2x^2-\frac{p^2}{x^2}}\frac{dx}{x^2}=\frac{1}{2p}e^{-2pq}\sqrt{\pi}$ (VIII, 518*). 2) $\int (e^{-px}-e^{-qx})\frac{dx}{x}=l\frac{q}{p}$ (VIII, 337).

3) $\int (e^{-qx^r}-e^{-px^r})\frac{dx}{x}=\frac{1}{r}l\frac{p}{q}$ (VIII, 435*). 4) $\int (e^{-px}-e^{-qx})e^{-rxi}\frac{dx}{x}=l\frac{q+ri}{p+ri}$ (IV, 185).

5) $\int (e^{-x^2}-e^{-x})\frac{dx}{x}=\frac{1}{2}A$ (VIII, 682). 6) $\int (e^{-x^4}-e^{-x^2})\frac{dx}{x}=\frac{1}{4}A$ (VIII, 682).

7) $\int (e^{-x^4}-e^{-x})\frac{dx}{x}=\frac{3}{4}A$ (VIII, 682). 8) $\int (e^{-x^{2^a}}-e^{-x})\frac{dx}{x}=\left(1-\frac{1}{2^a}\right)A$ (VIII, 682).

9) $\int (e^{-x^p}-e^{-x^q})\frac{dx}{x}=\frac{p-q}{pq}A$ (VIII, 702*). 10) $\int (e^{-x}-1)^b e^{-ax}\frac{dx}{x}=-\Delta^b.la$ (IV, 185).

11) $\int (e^{-px}-e^{-qx})(e^{-rx}-e^{-sx})e^{-x}\frac{dx}{x}=l\frac{(p+s+1)(q+r+1)}{(p+r+1)(q+s+1)}$ V. T. 123, N. 7.

12) $\int (1-e^{-px})(1-e^{-qx})e^{-x}\frac{dx}{x^2}=(p+q+1)l(p+q+1)-(p+1)l(p+1)-(q+1)l(q+1)$
V. T. 124, N. 2.

13) $\int (1-e^{-px})^2 e^{-qx}\frac{dx}{x^2}=(2p+q)l(2p+q)-2(p+q)l(p+q)+qlq$ V. T. 124, N. 3.

14) $\int (1-e^{-px})(1-e^{-qx})(1-e^{-rx})e^{-x}\frac{dx}{x^2}=(p+q+1)l(p+q+1)+(p+r+1)l(p+r+1)+$
$+(q+r+1)l(q+r+1)-(p+1)l(p+1)-(q+1)l(q+1)-(r+1)l(r+1)-$
$-(p+q+r)l(p+q+r)$ V. T. 124, N. 4.

15) $\int (e^{-x}-1)^a e^{-px}\frac{dx}{x^2}=\Delta^a.plp$ (IV, 186).

16) $\int (1-e^{-px})^a e^{-qx}\frac{dx}{x^2}=\sum_0^a (-1)^n\binom{a}{n}(q+np)l(q+np)$ V. T. 124, N. 6.

17) $\int (e^{-qx}-1)^a(e^{-rx}-1)^b e^{-px}\frac{dx}{x^2}=\sum_0^a(-1)^n\binom{a}{n}\sum_0^b(-1)^m\binom{b}{m}\{(b-m)r+(a-n)q+p\}$
$l\{(b-m)r+(a-n)q+p\}$ V. T. 124, N. 8.

18) $\int \{(p-r)e^{-qx}+(r-q)e^{-px}+(q-p)e^{-rx}\}\frac{dx}{x^2}=(r-q)plp+(p-r)qlq+(q-p)rlr$
V. T. 124, N. 9.

19) $\int \left\{\left(\frac{1}{2}+\frac{1}{x}\right)e^{-x}-\frac{1}{x}e^{-\frac{1}{2}x}\right\}\frac{dx}{x}=\frac{1}{2}(l2-1)$ (IV, 186).

20) $\int\left\{e^{-x}+\frac{1}{x}e^{-x}-\frac{1}{x}\right\}\frac{dx}{x}=-1$ (IV, 186).

21) $\int\left\{pe^{-x}+\frac{1}{x}e^{-px}-qe^{-x}-\frac{1}{x}e^{-qx}\right\}\frac{dx}{x}=p\,lp-p-q\,lq+q$ (IV, 186).

22) $\int\left\{\left(p-\frac{1}{2}\right)e^{-x}+\frac{x+2}{2x}\left(e^{-px}-e^{-\frac{1}{2}x}\right)\right\}\frac{dx}{x}=\left(p-\frac{1}{2}\right)(lp-1)$ (IV, 186).

23) $\int\left\{1-\frac{x+2}{2x}\left(1-e^{-x}\right)\right\}e^{-qx}\frac{dx}{x}=-1+\left(q+\frac{1}{2}\right)l\frac{q+1}{q}$ (IV, 186).

24) $\int\left\{qe^{-x}-\frac{1}{x}\left(1-e^{-qx}\right)\right\}\frac{dx}{x}=q\,lq-q$ (VIII, 585).

25) $\int\left\{e^{-x}-e^{-2x}-\frac{1}{x}e^{-2x}\right\}\frac{dx}{x}=1-l2$ (IV, 186).

26) $\int\left\{(p-q)e^{-bx}-\frac{1}{ax}\left(e^{-apx}-e^{-aqx}\right)\right\}\frac{dx}{x}=p\,lp-q\,lq-(p-q)\left\{1+l\frac{b}{a}\right\}$

27) $\int\left\{(p-q)e^{-rx}-\frac{1}{x}\left(e^{-px}-e^{-qx}\right)\right\}\frac{dx}{x}=p\,lp-q\,lp-(p-q)\{1+lr\}$

28) $\int\left\{\frac{1}{a}\left(e^{-apx}-e^{-aqx}\right)-\frac{1}{b}\left(e^{-bpx}-e^{-bqx}\right)\right\}\frac{dx}{x^2}=(q-p)\,l\frac{b}{a}$

Sur 26) à 28) voyez Winckler, Sitz. Ber. Wien. B. 21, 389.

29) $\int\left\{\frac{e^{-px}}{(p-q)(p-r)(p-s)}+\frac{e^{-qx}}{(q-p)(q-r)(q-s)}+\frac{e^{-rx}}{(r-p)(r-q)(r-s)}+\frac{e^{-sx}}{(s-p)(s-q)(s-r)}\right\}\frac{dx}{x^3}=$

$=\frac{\frac{1}{2}p^2\,lp}{(p-q)(p-r)(p-s)}+\frac{\frac{1}{2}q^2\,lq}{(q-p)(q-r)(q-s)}+\frac{\frac{1}{2}r^2\,lr}{(r-p)(r-q)(r-s)}+\frac{\frac{1}{2}s^2\,ls}{(s-p)(s-q)(s-r)}$

V. T. 124, N. 16.

30) $\int\left(1-e^{-px}\right)^a e^{-qx}\frac{dx}{x^3}=\frac{1}{2}\sum_0^a(-1)^{n-1}\binom{a}{n}(q+np)^2\,l(q+np)$ V. T. 124, N. 14.

31) $\int\left(1-e^{-px}\right)^a\left(1-e^{-qx}\right)e^{-x}\frac{dx}{x^3}=\frac{1}{2}\sum_0^a(-1)^n\binom{a}{n}(q+np+1)^2\,l(q+np+1)+$

$+\frac{1}{2}\sum_1^a(-1)^{n-1}\binom{a}{n}(pn+1)^2\,l(pn+1)$ V. T. 124, N. 15.

32) $\int\left\{\frac{1}{2}q^2e^{-x}-\frac{1}{x}q+\frac{1}{x^2}\left(1-e^{-qx}\right)\right\}\frac{dx}{x}=\frac{1}{2}q^2\,lq-\frac{3}{4}q^2$ (IV, 187).

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33) $\int \left\{\frac{1}{6} q^3 e^{-x} - \frac{1}{2x} q^2 + \frac{1}{x^2} q - \frac{1}{x^3}(1 - e^{-qx})\right\} \frac{dx}{x} = \frac{1}{6} q^3 lq - \frac{11}{36} q^3$ (IV, 187).

34) $\int \left\{\left(1 + \frac{r}{qx}\right)^{qx} - \left(1 + \frac{r}{px}\right)^{px}\right\} \frac{dx}{x} = (e^r - 1)\, l\frac{q}{p}$ (VIII, 280).

1) $\int e^{-qx} \frac{dx}{x^p} = q^{p-1} \Gamma(1-p)$ $[p < 1]$ (VIII, 439).

2) $\int e^{-px^2 - \frac{q}{x^2}} \frac{dx}{x^{2a}} = \frac{1}{2}\left(\frac{p}{q}\right)^{\frac{1}{2}a} e^{-2\sqrt{pq}} \sqrt{\frac{\pi}{p}} . \sum_0^\infty \frac{(a-n)^{2n/1}}{1^{n/1}} \left(\frac{1}{4\sqrt{pq}}\right)^n$ (IV, 210*).

3) $\int (e^{-qx} - 1) \frac{dx}{x^{p+1}} = -\frac{1}{p} q^p \Gamma(1-p)$

4) $\int (e^{-qx} - 1 + qx) \frac{dx}{x^{p+2}} = \frac{1}{p(p+1)} q^{p+1} \Gamma(1-p)$

5) $\int \left(e^{-qx} - 1 + qx - \frac{1}{2} q^2 x^2\right) \frac{dx}{x^{p+3}} = \frac{q^{p+2}}{p(p+1)(p+2)} \Gamma(1-p)$

(3) à 5)) $[0 < p < 1]$ Liouville, P. 21, 71.

6) $\int (e^{-qx} - e^{-rx}) \frac{dx}{x^{p+1}} = \frac{1}{p} \Gamma(1-p)(r^p - q^p)$ $[p < 1]$ (IV, 187).

7) $\int (e^{-ax^c} - e^{-bx^c}) \frac{dx}{x^c} = \frac{1}{c-1} \Gamma\left(\frac{1}{c}\right) \left\{b^{1-\frac{1}{c}} - a^{1-\frac{1}{c}}\right\}$ $[b > a > 0]$ (IV, 187).

8) $\int (e^{-x} - 1)^a e^{-bx} \frac{dx}{x^{q+1}} = \frac{-\pi}{Sin\, q\pi . \Gamma(q+1)} \Delta^a . b^q$ $[q < a]$, $= \frac{(-1)^q}{\Gamma(q+1)} \Delta^a . b^q lb$ $[q$ entier$]$ (IV, 187).

9) $\int (e^{-rx} - 1)^a e^{-prx} \frac{dx}{x^{q+1}} = \frac{(-1)^{q+1} r^q}{\Gamma(q+1)} \Delta^a . p\, lp$ V. T. 124, N. 19.

10) $\int \{e^{-bx}(e^{-x} - 1)^a - (-x)^a\} \frac{dx}{x^{q+1}} = -\frac{\pi}{\Gamma(q+1)} Cosec\, q\pi . \Delta^a . b^q$ (IV, 188).

11) $\int \left\{e^{-bx}(e^{-x} - 1)^{a-1} - (-x)^{a-1}\left(1 - \frac{1}{2}(2b + a - 1)x\right)\right\} \frac{dx}{x^{q+1}} = -\frac{\pi}{\Gamma(q+1)} Cosec\, q\pi . \Delta^{a-1} . b^q$ (IV, 188).

12) $\int \left\{e^{-bx}(e^{-x} - 1)^{a-2} - (-x)^{a-2}\left(1 - \frac{1}{2}(2b + a - 2)x + \frac{1}{12}\{6b(b + a - 2) + (a-2)(3a-7)\}x^2\right)\right\} \frac{dx}{x^{q+1}} =$

$= -\frac{\pi}{\Gamma(q+1)} Cosec\, q\pi . \Delta^{a-2} . b^q$ (IV, 188). Dans 10) à 12) on a $a < q < a + 1$.

1) $\int e^{-px} \frac{dx}{q+x} = -e^{pq} Ei(-pq)$ (VIII, 297).

2) $\int e^{pxi} \frac{dx}{xi+q} = \pi e^{-pq} + i e^{-pq} Ei(pq)$ (IV, 188).

3) $\int e^{-px} \frac{x^a\,dx}{q+x} = (-1)^{a+1} q^a e^{pq} Ei(-pq) + \frac{1}{p^a} \sum_1^a 1^{a-n|1} (-pq)^{n-1}$ (IV, 188).

4) $\int e^{-px} \frac{dx}{q-x} = e^{-pq} Ei(pq)$ (VIII, 297).

5) $\int e^{pxi} \frac{dx}{xi-q} = i e^{pq} Ei(-pq)$ (IV, 189).

6) $\int e^{-px} \frac{x^a\,dx}{q-x} = q^a e^{-pq} Ei(pq) - \frac{1}{p^a} \sum_1^a 1^{a-n|1} (pq)^{n-1}$ (IV, 189).

7) $\int e^{-px} \frac{dx}{q^2+x^2} = \frac{1}{q} \left\{ Ci(pq) . Sin\,pq - Si(pq) . Cos\,pq + \frac{1}{2}\pi\, Cos\,pq \right\}$ (VIII, 524).

8) $\int e^{-px} \frac{x\,dx}{q^2+x^2} = - Ci(pq) . Cos\,pq - Si(pq) . Sin\,pq + \frac{1}{2}\pi\, Sin\,pq$ (VIII, 524).

9) $\int e^{pxi} \frac{dx}{q^2+x^2} = \frac{\pi}{2q} e^{-pq} - \frac{1}{2qi} \left\{ e^{-pq} Ei(pq) - e^{pq} Ei(-pq) \right\}$ (IV, 189).

10) $\int e^{pxi} \frac{x\,dx}{q^2+x^2} = \frac{1}{2}\pi i e^{-pq} - \frac{1}{2} \left\{ e^{-pq} Ei(pq) + e^{pq} Ei(-pq) \right\}$ (IV, 189).

11) $\int e^{-px} \frac{x^{2a}\,dx}{q^2+x^2} = (-1)^a q^{2a-1} \left\{ Ci(pq) . Sin\,pq - Si(pq) . Cos\,pq + \frac{1}{2}\pi\, Cos\,pq \right\} +$
$+ \frac{1}{p^{2a-1}} \sum_1^a 1^{2a-2n|1} (-p^2 q^2)^{n-1}$ (IV, 189).

12) $\int e^{-px} \frac{x^{2a+1}\,dx}{q^2+x^2} = (-1)^{a-1} q^{2a} \left\{ Ci(pq) . Cos\,pq + Si(pq) . Sin\,pq - \frac{1}{2}\pi\, Sin\,pq \right\} +$
$+ \frac{1}{p^{2a}} \sum_1^a 1^{2a-2n+1|1} (-p^2 q^2)^{n-1}$ (IV, 189).

13) $\int e^{-px^2} \frac{dx}{1+x^2} = e^{\frac{1}{2}p} \sqrt{\pi} . \left\{ 2 e^{\frac{1}{2}p} \sqrt{\pi} - \sqrt{ \sum_1^\infty \frac{p^n}{1^{n|1}} \sum_1^n \frac{(-1)^{m-1}}{2m-1} } \right\}$ Raabe, Cr. B. 48, 127.

14) $\int e^{-px} \frac{dx}{q^2-x^2} = \frac{1}{2q} \left\{ e^{-pq} Ei(pq) - e^{pq} Ei(-pq) \right\}$ (VIII, 297).

15) $\int e^{-px} \frac{x\,dx}{q^2-x^2} = \frac{1}{2} \left\{ e^{-pq} Ei(pq) + e^{pq} Ei(-pq) \right\}$ (VIII, 297).

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16) $\int e^{-px} \frac{x^{2a}\,dx}{q^2-x^2} = \frac{1}{2} q^{2a-1} \{e^{-pq} Ei(pq) - e^{pq} Ei(-pq)\} - \frac{1}{p^{2a-1}} \sum_1^a 1^{2a-2n/1} (p^2 q^2)^{n-1}$

(IV, 190).

17) $\int e^{-px} \frac{x^{2a+1}\,dx}{q^2-x^2} = \frac{1}{2} q^{2a} \{e^{pq} Ei(-pq) + e^{-pq} Ei(pq)\} - \frac{1}{p^{2a}} \sum_1^a 1^{2a-2n+1/1} (p^2 q^2)^{n-1}$

(IV, 190).

18) $\int e^{-px} \frac{dx}{q^4-x^4} = \frac{1}{4q^3} \{e^{-pq} Ei(pq) - e^{pq} Ei(-pq) + 2\, Ci(pq).Sin\,pq - 2\, Si(pq).Cos\,pq + \pi\, Cos\,pq\}$

V. T. 91, N. 7, 14.

19) $\int e^{-px} \frac{x\,dx}{q^4-x^4} = \frac{1}{4q^2} \{e^{pq} Ei(-pq) + e^{-pq} Ei(pq) - 2\, Ci(pq).Cos\,pq - 2\, Si(pq).Sin\,pq + \pi\, Sin\,pq\}$

V. T. 91, N. 8, 15.

20) $\int e^{-px} \frac{x^2\,dx}{q^4-x^4} = \frac{1}{4q} \{e^{-pq} Ei(pq) - e^{pq} Ei(-pq) - 2\, Ci(pq).Sin\,pq + 2\, Si(pq).Cos\,pq - \pi\, Cos\,pq\}$

V. T. 91, N. 7, 14.

21) $\int e^{-px} \frac{x^3\,dx}{q^4-x^4} = \frac{1}{4} \{e^{pq} Ei(-pq) + e^{-pq} Ei(pq) + 2\, Ci(pq).Cos\,pq + 2\, Si(pq).Sin\,pq - \pi\, Sin\,pq\}$

V. T. 91, N. 8, 15.

22) $\int e^{-px} \frac{x^{4a}\,dx}{q^4-x^4} = \frac{1}{4} q^{4a-3} \{e^{-pq} Ei(pq) - e^{pq} Ei(-pq) + 2\, Ci(pq).Sin\,pq - 2\, Si(pq).Cos\,pq + \pi\, Cos\,pq\} -$

$- \frac{1}{p^{4a-3}} \sum_1^a 1^{4a-4n/1} (p^4 q^4)^{n-1}$ V. T. 91, N. 11, 16.

23) $\int e^{-px} \frac{x^{4a+1}\,dx}{q^4-x^4} = \frac{1}{4} q^{4a-2} \{e^{pq} Ei(-pq) + e^{-pq} Ei(pq) - 2\, Ci(pq).Cos\,pq - 2\, Si(pq).Sin\,pq + \pi\, Sin\,pq\} -$

$- \frac{1}{p^{4a-2}} \sum_1^a 1^{4a-4n+1/1} (p^4 q^4)^{n-1}$ V. T. 91, N. 12, 17.

24) $\int e^{-px} \frac{x^{4a+2}\,dx}{q^4-x^4} = \frac{1}{2} q^{4a-1} \{e^{-pq} Ei(pq) - e^{pq} Ei(-pq) - 2\, Ci(pq).Sin\,pq + 2\, Si(pq).Cos\,pq - \pi\, Cos\,pq\} -$

$- \frac{1}{p^{4a-1}} \sum_1^a 1^{4a-4n+2/1} (p^4 q^4)^{n-1}$ V. T. 91, N. 11, 16.

25) $\int e^{-px} \frac{x^{4a+3}\,dx}{q^4-x^4} = \frac{1}{4} q^{4a} \{e^{pq} Ei(-pq) + e^{-pq} Ei(pq) + 2\, Ci(pq).Cos\,pq + 2\, Si(pq).Sin\,pq - \pi\, Sin\,pq\} -$

$- \frac{1}{p^{4a}} \sum_1^a 1^{4a-4n+3/1} (p^4 q^4)^{n-1}$ V. T. 91, N. 12, 17.

26) $\int e^{-x} \frac{x^a\,dx}{1+x^b} = \sum_0^\infty (-1)^n\, 1^{a+nb/1}$ De Morgan, Int. Calc.

1) $\int e^{-px}\frac{dx}{(q+x)^2}=\frac{1}{q}+p\,e^{pq}\,Ei(-pq)$ V. T. 31, N. 16.

2) $\int e^{-px}\frac{dx}{(q+x)^a}=(-1)^a\frac{p^{a-1}}{1^{a-1/1}}e^{pq}\,Ei(-pq)+\frac{1}{1^{a-1/1}\,q^{a-1}}\sum_1^{a-1}1^{a-n-1/1}(-pq)^{n-1}$ (IV, 190).

3) $\int e^{-px}\frac{x^{q-1}\,dx}{(1+rx)^a}=\frac{1}{p^q}\Gamma(q)\sum_0^{\infty}\frac{a^{n/1}}{1^{n/1}}\,\frac{q^{n/1}}{p^n}r^n$ (VIII, 513).

4) $\int e^{-px}\frac{dx}{(q-x)^2}=-\frac{1}{q}+p\,e^{-pq}\,Ei(pq)$ V. T. 31, N. 14.

5) $\int e^{-px}\frac{dx}{(q-x)^a}=\frac{p^{a-1}}{1^{a-1/1}}e^{-pq}\,Ei(pq)-\frac{1}{1^{a-1/1}\,q^{a-1}}\sum_1^{a-1}1^{a-n-1/1}(pq)^{n-1}$ (IV, 190).

6) $\int e^{-px}\frac{dx}{(q^2+x^2)^2}=\frac{1}{2q^3}\Big\{Ci(pq).Sin\,pq-Si(pq).Cos\,pq+\frac{1}{2}\pi\,Cos\,pq+pq\Big(Ci(pq).Cos\,pq+$

$+Si(pq).Sin\,pq-\frac{1}{2}\pi\,Sin\,pq\Big)\Big\}$ (IV, 191).

7) $\int e^{-px}\frac{x\,dx}{(q^2+x^2)^2}=\frac{1}{2q^2}\Big\{1-pq\Big(Ci(pq).Sin\,pq-Si(pq).Cos\,pq+\frac{1}{2}\pi\,Cos\,pq\Big)\Big\}$ (IV, 191).

8) $\int e^{-px}\frac{dx}{(q^2-x^2)^2}=\frac{1}{4q^3}\{(pq-1)e^{pq}\,Ei(-pq)+(1+pq)e^{-pq}\,Ei(pq)\}$ (IV, 191).

9) $\int e^{-px}\frac{x\,dx}{(q^2-x^2)^2}=\frac{1}{4q^2}\Big(1+pq\,\{e^{-pq}\,Ei(pq)-e^{pq}\,Ei(-pq)\}\Big)$ (IV, 191).

10) $\int\Big(e^{-px}-\frac{1}{1+qx}\Big)\frac{dx}{x}=-A+l\frac{q}{p}$ (VIII, 533).

11) $\int\Big(e^{-px}-\frac{1}{1+q^2x^2}\Big)\frac{dx}{x}=-A+l\frac{q}{p}$ (VIII, 534).

12) $\int\Big(e^{-x^2}-\frac{1}{1+x^2}\Big)\frac{dx}{x}=-\frac{1}{2}A$ (VIII, 682).

13) $\int\Big(e^{-x^{2^a}}-\frac{1}{1+x^2}\Big)\frac{dx}{x}=-\frac{1}{2^a}A$ (VIII, 702).

14) $\int\Big(e^{-x^{2^a}}-\frac{1}{1+x^{2^{a+1}}}\Big)\frac{dx}{x}=-\frac{1}{2^a}A$ (VIII, 702).

15) $\int\Big(e^{-x}-\frac{1}{(1+x)^p}\Big)\frac{dx}{x}=Z'(p)$ (VIII, 601).

16) $\int\Big(\frac{e^{-x}-1}{x}+\frac{1}{1+x}\Big)\frac{dx}{x}=A-1$ (IV, 193).

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17) $\int \left\{ \frac{e^{-xi}}{\left(1-\frac{1}{q}xi\right)^q} + \frac{e^{xi}}{\left(1+\frac{1}{q}xi\right)^q} \right\} dx = \frac{2\pi}{\Gamma(q)} \left(\frac{q}{e}\right)^q$ (IV, 193).

18) $\int e^{-px} \frac{dx}{q^3+q^2x+qx^2+x^3} = \frac{1}{2q^2} \Big\{ Ci(pq).(Sin\,pq + Cos\,pq) + \left\{ Si(pq) - \frac{1}{2}\pi \right\} (Sin\,pq - Cos\,pq) - e^{pq} Ei(-pq) \Big\}$ V. T. 91, N. 1, 7, 8.

19) $\int e^{-px} \frac{x\,dx}{q^3+q^2x+qx^2+x^3} = \frac{1}{2q} \Big\{ Ci(pq).(Sin\,pq - Cos\,pq) + \left(\frac{1}{2}\pi - Si(pq)\right)(Sin\,pq + Cos\,pq) + e^{pq} Ei(-pq) \Big\}$ V. T. 91, N. 1, 7, 8.

20) $\int e^{-px} \frac{x^2\,dx}{q^3+q^2x+qx^2+x^3} = \frac{1}{2} \Big\{ -Ci(pq).(Sin\,pq + Cos\,pq) + \left(\frac{1}{2}\pi - Si(pq)\right)(Sin\,pq - Cos\,pq) - e^{pq} Ei(-pq) \Big\}$ V. T. 91, N. 1, 7, 8.

21) $\int e^{-px} \frac{dx}{q^3-q^2x+qx^2-x^3} = \frac{1}{2q^2} \Big\{ Ci(pq).(Sin\,pq - Cos\,pq) - \left(Si(pq) - \frac{1}{2}\pi\right)(Sin\,pq + Cos\,pq) + e^{-pq} Ei(pq) \Big\}$ V. T. 91, N. 4, 7, 8.

22) $\int e^{-px} \frac{x\,dx}{q^3-q^2x+qx^2-x^3} = \frac{1}{2q} \Big\{ -Ci(pq).(Sin\,pq + Cos\,pq) + \left(\frac{1}{2}\pi - Si(pq)\right)(Sin\,pq - Cos\,pq) + e^{-pq} Ei(pq) \Big\}$ V. T. 91, N. 4, 7, 8.

23) $\int e^{-px} \frac{x^2\,dx}{q^3-q^2x+qx^2-x^3} = \frac{1}{2} \Big\{ Ci(pq).(Cos\,pq - Sin\,pq) + \left(Si(pq) - \frac{1}{2}\pi\right)(Sin\,pq + Cos\,pq) + e^{-pq} Ei(pq) \Big\}$ V. T. 91, N. 4, 7, 8.

F. Alg. rat. fract. à dén. monôme; Exp. bin. $e^{-x} \pm 1$ en dén. A un terme. TABLE 93. Lim. 0 et ∞.

1) $\int \frac{1}{e^x+1} \frac{dx}{x} = \infty =$

2) $\int \frac{1}{e^x-1} \frac{dx}{x}$ (VIII, 542).

3) $\int \frac{1-e^{-x}}{e^x+1} \frac{dx}{x} = l\frac{\pi}{2}$ V. T. 127, N. 3.

4) $\int \frac{1-e^{(1-q)x}}{e^x+1} \frac{dx}{x} = l \left\{ \frac{\Gamma\left(\frac{q+1}{2}\right)}{\Gamma\left(\frac{q}{2}\right)} \sqrt{\pi} \right\}$ V. T. 127, N. 4.

5) $\int \frac{e^{-qx}-e^{(q-1)x}}{e^{-x}+1} \frac{dx}{x} = l \, Cot \frac{q\pi}{2}$ V. T. 130, N. 6.

6) $\int \frac{e^{-qx}-e^{-px}}{e^{-x}+1} \frac{dx}{x} = l \frac{\Gamma\left(\frac{q}{2}\right)\Gamma\left(\frac{p+1}{2}\right)}{\Gamma\left(\frac{p}{2}\right)\Gamma\left(\frac{q+1}{2}\right)}$ V. T. 127, N. 5.

7) $\int \frac{e^{-px}-e^{(p-q)x}}{e^{-qx}+1} \frac{dx}{x} = l \, Cot \frac{p\pi}{2q}$ V. T. 130, N. 9.

8) $\int \frac{1-e^{-qx}}{e^{-x}+1} e^{-(p+1)x} \frac{dx}{x} = l \frac{\Gamma\left(\frac{p+1}{2}\right)\Gamma\left(\frac{p+q}{2}+1\right)}{\Gamma\left(\frac{p}{2}+1\right)\Gamma\left(\frac{p+q+1}{2}\right)}$ V. T. 127, N. 6.

9) $\int \frac{(e^{qx}-e^{-qx})^2}{e^x+1} \frac{dx}{x} = -l(q\pi \, Cot \, q\pi)$ V. T. 130, N. 7.

10) $\int \frac{e^{-px}-e^{-qx}}{e^{-rx}+1} \frac{1+e^{(p+q-r)x}}{x} dx = l\left(Tg \frac{q\pi}{2r} . Cot \frac{p\pi}{2r}\right)$ V. T. 130, N. 10.

11) $\int \frac{e^{-px}-e^{-qx}}{e^{-x}+1} \frac{1+e^{-(2a+1)x}}{x} dx = l \frac{\left(\frac{q}{2}\right)^{a+1/1}\left(\frac{p+1}{2}\right)^{a/1}}{\left(\frac{q+1}{2}\right)^{a/1}\left(\frac{p}{2}\right)^{a+1/1}}$ V. T. 127, N. 7.

12) $\int \frac{1-e^{-px}}{1-e^x} \frac{1-e^{-qx}}{x} dx = l \frac{\Gamma(p+1)\Gamma(q+1)}{\Gamma(p+q+1)}$ V. T. 127, N. 8.

13) $\int \frac{1-e^{-px}}{1-e^{-x}} \frac{1-e^{-qx}}{x} e^{-rx} dx = l \frac{\Gamma(r)\Gamma(p+q+r)}{\Gamma(p+r)\Gamma(q+r)}$ V. T. 127, N. 9.

14) $\int \frac{(1-e^{-px})(1-e^{-qx})(1-e^{-rx})}{1-e^{-x}} e^{-sx} \frac{dx}{x} = l \frac{\Gamma(p+q+s)\Gamma(p+r+s)\Gamma(q+r+s)\Gamma(s)}{\Gamma(p+s)\Gamma(q+s)\Gamma(r+s)\Gamma(p+q+r+s)}$
V. T. 127, N. 11.

15) $\int \frac{(e^{qx}-e^{-qx})^2}{1-e^{px}} \frac{dx}{x} = l\left(\frac{p}{2q\pi} Sin \frac{2q\pi}{p}\right)$ V. T. 128, N. 10.

16) $\int \frac{1-e^{(1-q)x}}{1-e^{-x}} \frac{1-e^{(\frac{1}{2}-q)x}}{e^{\frac{1}{2}x}} \frac{dx}{x} = (2q-2) l 2$ V. T. 132, N. 15.

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17) $\int \frac{e^x-1}{e^x+1}\frac{1}{e^x+e^{-x}}\frac{dx}{x}=\frac{1}{2}l2$ (VIII, 542).

18) $\int \frac{1-e^{-x}}{e^x+1}\frac{e^{-x}}{e^x+e^{-x}}\frac{dx}{x}=l\frac{\pi}{2\sqrt{2}}$ V. T. 130, N. 17.

F. Alg. rat. fract. à dén. mon.; Exp. bin. $e^{ax}\pm 1$ en dén. A plusieurs termes. TABLE 94. Lim. 0 et ∞.

1) $\int \left\{\frac{1}{1-e^{-x}}-\frac{1}{x}\right\}e^{-x}\,dx=A$ V. T. 127, N. 15.

2) $\int \left\{\frac{e^{-x}}{x}-\frac{e^{-qx}}{e^x-1}\right\}dx=Z'(1+q)$ V. T. 127, N. 16.

3) $\int \left\{\frac{e^{-qx}}{1-e^{-x}}-\frac{e^{-px}}{x}\right\}dx=lp-Z'(q)$ V. T. 127, N. 17.

4) $\int \left\{\frac{b}{x}-\frac{e^{(1-q)x}}{1-e^{-\frac{x}{b}}}\right\}e^{-x}\,dx=bZ'(bq)-blb$ V. T. 132, N. 21.

5) $\int \left\{\frac{1}{2}-\frac{1}{1+e^{-\frac{1}{2}x}}\right\}e^{-x}\frac{dx}{x}=\frac{1}{2}l\frac{\pi}{4}$ (IV, 195). 6) $\int \left\{\frac{1}{2}e^{-2x}-\frac{1}{e^x+1}\right\}\frac{dx}{x}=-\frac{1}{2}l\pi$ (IV, 195).

7) $\int \left\{q-\frac{1-e^{-qx}}{1-e^{-x}}\right\}e^{-x}\frac{dx}{x}=l\Gamma(q+1)$ (IV, 195).

8) $\int \left\{qe^{-x}-\frac{e^{-px}-e^{-(p+q)x}}{e^x-1}\right\}\frac{dx}{x}=l\frac{\Gamma(p+q+1)}{\Gamma(p+1)}$ V. T. 127, N. 19.

9) $\int \left\{\frac{e^{-qx}}{1-e^{-x}}-\frac{e^{-pqx}+(p-1)e^{-\frac{1}{2}px}}{1-e^{-px}}\right\}\frac{dx}{x}=\frac{1}{2}(p-1)l2+\left(\frac{1}{2}-pq\right)lp$ V. T. 132, N. 24.

10) $\int \left\{\frac{e^x}{e^{2x}-1}-\frac{1}{2x}\right\}\frac{dx}{x}=-\frac{1}{2}l2$

11) $\int \left\{\frac{q}{e^{qx}-e^{-qx}}-\frac{p}{e^{px}-e^{-px}}\right\}\frac{dx}{x}=\frac{p-q}{2}l2$

(10, 11) Winckler, Sitz. Ber. Wien. B. 21, 389.

12) $\int \left\{1-e^{-x}-\frac{(1-e^{-qx})(1-e^{-px})}{1-e^{-x}}\right\}\frac{dx}{x}=l\frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}$ V. T. 130, N. 18.

13) $\int \left\{ap-\frac{1}{2}(a-1)-\frac{a}{1-e^{-x}}-\frac{e^{(1-p)x}}{1-e^{\frac{x}{a}}}\right\}e^{-x}\frac{dx}{x}=\sum_{0}^{a-1}l\Gamma\left(p-\frac{n}{a}+1\right)$ (IV, 196).

14) $\int \left\{\frac{a-1}{2}+\frac{a-1}{1-e^{-x}}+\frac{e^{(1-p)x}}{1-e^{\frac{x}{a}}}+\frac{e^{-apx}}{1-e^{-x}}\right\}e^{-x}\frac{dx}{x}=\frac{1}{2}(a-1)l2\pi-\left(ap+\frac{1}{2}\right)la$ (IV, 196).

15) $\int \left\{ \frac{e^{(1-p)x}}{1-e^x} - \frac{e^{(1-p)qx}}{1-e^{qx}} - \frac{e^x}{1-e^x} + \frac{e^{qx}}{1-e^{qx}} \right\} \frac{dx}{x} = q\,lp$ (IV, 196).

16) $\int \left\{ \frac{1}{e^x-1} - \frac{pe^{-px}}{1-e^{-px}} + \left(pq - \frac{p+1}{2}\right) e^{-px} + (1-pq)e^{-x} \right\} \frac{dx}{x} = \frac{p-1}{2} l2\pi + \left(\frac{1}{2} - pq\right) lp$

V. T. 130, N. 21.

17) $\int \left\{ \frac{e^{-qx}}{1-e^{-x}} - \frac{e^{-pqx}}{1-e^{-px}} - \frac{p-1}{1-e^{-px}} e^{-px} - \frac{p-1}{2} e^{-px} \right\} \frac{dx}{x} = \frac{p-1}{2} l2\pi + \left(\frac{1}{2} - pq\right) lp$

V. T. 130, N. 22.

18) $\int \left\{ qe^{-px} - \frac{1}{p} e^{-q} - \frac{1}{p} \frac{e^p - e^{-pqx}}{1-e^{-x}} \right\} \frac{dx}{x} = \frac{1}{p} l\Gamma(pq) - q\,lp$

19) $\int \left\{ \frac{a}{q} p - \frac{a(a-1)}{2} \frac{r}{q} - a - \frac{a}{1-e^{-x}} + \frac{1-e^{-\left(\frac{p}{q}-1\right)x}}{1-e^{-x}} \frac{1-e^{-\frac{r}{q}ax}}{1-e^{-\frac{r}{q}x}} \right\} e^{-x} \frac{dx}{x} = \sum_0^{a-1} l\Gamma\left(\frac{p+nr}{q}\right)$

20) $\int \left\{ \frac{a}{q} \left(p + \frac{ar-q-r}{2}\right) e^{-qx} - \frac{1}{2} a e^{-qx} - \frac{a}{e^{qx}-1} + \frac{1-e^{-arx}}{1-e^{-qx}} \frac{e^{-px}}{1-e^{-rx}} \right\} \frac{dx}{x} = \sum_0^{a-1} l\Gamma\left(\frac{p+nr}{q}\right)$

21) $\int \left\{ \frac{1}{2} \left(\frac{ar}{q} e^{-rx} - a e^{-qx}\right) + \frac{ar}{q(e^{rx}-1)} - \frac{a}{e^{qx}-1} \right\} \frac{dx}{x} = \frac{a}{q}\left(p + \frac{ar-q-r}{2}\right) l\frac{q}{r} + \sum_0^{a-1} l\Gamma\left(\frac{p+nr}{q}\right) -$

$- \sum_0^{ar-1} l\Gamma\left(\frac{p+nq}{r}\right)$ Sur 18) à 21) voyez Winckler, Sitz. Ber. Wien. B. 21, 389.

22) $\int \left\{ \frac{1}{1-e^{-2x}} - \frac{2-e^{-x}}{2x} - \frac{1-e^{-x}}{2} \right\} e^{-x} \frac{dx}{x} = 0$ (IV, 195).

23) $\int \left\{ \frac{1}{e^x-1} - \frac{1}{e^{2x}-1} - \frac{e^{-\frac{1}{2}x}}{x} + \frac{e^{-x}}{2x} \right\} \frac{dx}{x} = 0$ (IV, 196).

24) $\int \left\{ \frac{1}{1-e^{-x}} - \frac{1}{x} - \frac{1}{2} \right\} e^{-\frac{1}{2}x} \frac{dx}{x} = \frac{1}{2}(1 - l2) =$ 25) $\int \left\{ \frac{1}{1-e^{-2x}} - \frac{1}{2x} - \frac{1}{2} \right\} e^{-x} \frac{dx}{x}$ (IV, 195).

26) $\int \left\{ \left(p - 1 - \frac{1}{1-e^{-x}}\right) e^{-x} + \left(\frac{1}{2} + \frac{1}{x}\right) e^{-px} \right\} \frac{dx}{x} = \left(p - \frac{1}{2}\right) lp - p + \frac{1}{2} l2\pi$ (IV, 195).

27) $\int \left\{ \left(\frac{1}{x} + \frac{1}{2}\right) e^{-\frac{1}{2}x} - \left(\frac{1}{2} + \frac{1}{1-e^{-x}}\right) e^{-x} \right\} \frac{dx}{x} = \frac{1}{2}(l2\pi - 1)$ (IV, 195).

28) $\int \left\{ pe^{-x} - \frac{1}{x} e^{-px} - \frac{1}{2} e^{-px} - \frac{1}{e^x-1} \right\} \frac{dx}{x} = \left(p + \frac{1}{2}\right) lp - p + \frac{1}{2} l2\pi$ (IV, 195).

29) $\int \left\{ \frac{1}{2} e^{-x} + \frac{1}{x} e^{-x} - \frac{1}{e^x-1} \right\} \frac{dx}{x} = \frac{1}{2} l2\pi - 1 =$ 30) $\int \left\{ \frac{1}{x} e^{-x} - \frac{1}{2} \frac{e^{-x}+1}{e^x-1} \right\} \frac{dx}{x}$ (IV, 196).

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31) $\int \left\{ \frac{1}{x} e^{-x} - x e^{-x} - \frac{1}{2} \frac{e^{-x}+1}{e^{x}-1} \right\} \frac{dx}{x} = \frac{1}{2} l 2\pi =$ 32) $\int \left\{ \frac{1}{x} - \frac{1}{2} e^{-x} - \frac{1}{e^{x}-1} \right\} \frac{dx}{x}$ (IV, 196).

33) $\int \left\{ \left(q - \frac{1}{2}\right) \frac{e^{-rx} - e^{-px}}{x} + \frac{p e^{-pqx}}{1-e^{-px}} - \frac{r e^{-qrx}}{1-e^{-rx}} \right\} \frac{dx}{x} = (r-p) \left\{ \frac{1}{2} - q + \frac{1}{2} l 2\pi - l\Gamma(q) \right\}$

V. T. 131, N. 13.

F. Alg. rat. fract. à dén. monôme. Exp. binôme $e^{ax} \pm e^{-ax}$ en dén. TABLE 95. Lim. 0 et ∞.

1) $\int \frac{e^{x} - e^{-x}}{e^{2x} + e^{-2x}} \frac{dx}{x} = l\, Tg \frac{3\pi}{8}$ V. T. 128, N. 3.

2) $\int \frac{1 - e^{2(q-p)x}}{e^{qx} + e^{(q-2p)x}} \frac{dx}{x} = l\, Cot \frac{q\pi}{4p}$ V. T. 128, N. 6.

3) $\int \frac{e^{qx} - e^{-qx}}{e^{px} + e^{-px}} \frac{dx}{x} = l\, Tg \left(\frac{p+q}{4p} \pi \right)$ V. T. 128, N. 5.

4) $\int \frac{(1-e^{-x})^2}{e^{x} + e^{-x}} \frac{dx}{x} = l \frac{4}{\pi}$ V. T. 128, N. 2. 5) $\int \frac{(e^{qx} - e^{-qx})^2}{e^{px} - e^{-px}} \frac{dx}{x} = l\, Sec \frac{q\pi}{p}$ (VIII, 542).

6) $\int \frac{(1 - e^{(q-p)x})^2}{e^{qx} - e^{(q-2p)x}} \frac{dx}{x} = l\, Cosec \frac{q\pi}{2p}$ V. T. 128, N. 9.

7) $\int \frac{(e^{qx} - e^{-qx})^2}{e^{x} - e^{-x}} e^{-x} \frac{dx}{x} = l (q\pi\, Cosec\, q\pi)$ V. T. 130, N. 13.

8) $\int \frac{1 - e^{-qx}}{e^{x} - e^{-x}} \frac{1 - e^{-(q+1)x}}{x} dx = q\, l 2$ $[q > 1]$ V. T. 128, N. 12.

9) $\int \frac{e^{qx} + e^{-qx}}{e^{rx} + e^{-rx}} \frac{dx}{x^p} = \Gamma(1-p) \sum_0^\infty (-1)^n \left\{ \frac{1}{\{(2n+1)r - q\}^{1-p}} + \frac{1}{\{(2n+1)r + q\}^{1-p}} \right\}$ (VIII, 488*).

10) $\int \frac{e^{qx} - e^{-qx}}{e^{rx} - e^{-rx}} \frac{dx}{x^p} = \Gamma(1-p) \sum_0^\infty \left\{ \frac{1}{\{(2n+1)r - q\}^{1-p}} - \frac{1}{\{(2n+1)r + q\}^{1-p}} \right\}$ (VIII, 488*).

Dans 9) et 10) on a $p < 1$.

11) $\int \left\{ \frac{x}{e^{x} - e^{-x}} - \frac{1}{2} \right\} \frac{dx}{x^2} = -\frac{1}{2} l 2$ (VIII, 437).

12) $\int \left\{ \frac{p}{e^{px} - e^{-px}} - \frac{q}{e^{qx} - e^{-qx}} \right\} \frac{dx}{x} = \frac{1}{2} (q-p)\, l 2$ (VIII, 437).

1) $\int \frac{e^{-px}-e^{-qx}}{e^x+e^{-x}+2\,Cos\frac{a\pi}{b}}\frac{dx}{x} = Cosec\frac{a\pi}{b}\sum_1^{b-1}(-1)^{n-1}\,Sin\frac{na\pi}{b}.\,l\frac{\Gamma\left(\frac{b+q+n}{2b}\right)\Gamma\left(\frac{p+n}{2b}\right)}{\Gamma\left(\frac{b+p+n}{2b}\right)\Gamma\left(\frac{q+n}{2b}\right)}\left[\begin{matrix}a+b\\ \text{impair}\end{matrix}\right],$

$= Cosec\frac{a\pi}{b}\sum_1^{\frac{1}{2}(b-1)}(-1)^{n-1}\,Sin\frac{na\pi}{b}.\,l\frac{\Gamma\left(\frac{b+q-n}{b}\right)\Gamma\left(\frac{p+n}{b}\right)}{\Gamma\left(\frac{b+p-n}{b}\right)\Gamma\left(\frac{q+n}{b}\right)}\left[\begin{matrix}a+b\\ \text{pair}\end{matrix}\right]$ V. T. 130, N. 2.

2) $\int \frac{(1-e^{-x})^2}{e^x+e^{-x}+2\,Cos\frac{a\pi}{b}}\frac{dx}{x} = Cosec\frac{a\pi}{b}.\sum_1^{b-1}(-1)^{n-1}\,Sin\frac{na\pi}{b}.\,l\frac{\left\{\Gamma\left(\frac{b+n+1}{2b}\right)\right\}^2\Gamma\left(\frac{n+2}{2b}\right)\Gamma\left(\frac{n}{2b}\right)}{\left\{\Gamma\left(\frac{n+1}{2b}\right)\right\}^2\Gamma\left(\frac{n+b}{2b}\right)\Gamma\left(\frac{n+b+2}{2b}\right)}\left[\begin{matrix}a+\\ \text{impa}\end{matrix}\right.$

$= Cosec\frac{a\pi}{b}.\sum_1^{\frac{1}{2}(b-1)}(-1)^{n-1}\,Sin\frac{na\pi}{b}.\,l\frac{\left\{\Gamma\left(\frac{b-n+1}{b}\right)\right\}^2\Gamma\left(\frac{n+2}{b}\right)\Gamma\left(\frac{n}{b}\right)}{\left\{\Gamma\left(\frac{n+1}{b}\right)\right\}^2\Gamma\left(\frac{b-n}{b}\right)\Gamma\left(\frac{b-n+2}{b}\right)}\left[\begin{matrix}a+b\\ \text{pair}\end{matrix}\right]$ V. T. 130,

3) $\int\left\{e^{-x}\,Tg\frac{a\pi}{2b}-\frac{2e^{-px}\,Sin\frac{a\pi}{b}}{e^x+e^{-x}+2\,Cos\frac{a\pi}{b}}\right\}\frac{dx}{x} = Tg\frac{a\pi}{2b}.\,l2b+2\sum_1^{b-1}(-1)^{n-1}\,Sin\frac{na\pi}{b}.\,l\frac{\Gamma\left(\frac{b+p+n}{2b}\right)}{\Gamma\left(\frac{p+n}{2b}\right)}\left[\begin{matrix}a+b\\ \text{impair}\end{matrix}\right],$

$= Tg\frac{a\pi}{2b}.\,lb+2\sum_1^{\frac{1}{2}(b-1)}(-1)^{n-1}\,Sin\frac{na\pi}{b}.\,l\frac{\Gamma\left(\frac{b+p-n}{b}\right)}{\Gamma\left(\frac{p+n}{b}\right)}\left[\begin{matrix}a+b\\ \text{pair}\end{matrix}\right]$ V. T. 130, N. 4.

4) $\int \frac{1}{e^x+e^{-x}+2\,Cos\lambda}\frac{dx}{x^{1-q}} = Cosec\lambda.\Gamma(q)\sum_1^{\infty}(-1)^{n-1}\frac{Sin\,n\lambda}{n^q}$ V. T. 130, N. 1.

5) $\int \frac{e^x+e^{-x}}{e^x+e^{-x}+2\,Cos\lambda}\frac{dx}{x^{1-q}} = Sec\frac{1}{2}\lambda.\Gamma(q)\sum_1^{\infty}(-1)^{n-1}\frac{Cos\{(n-\frac{1}{2})\lambda\}}{n^q}$ V. T. 130, N. 5.

6) $\int\left\{q-\frac{1}{2}+\frac{(1-e^{-x})(1-qx)-xe^{-x}}{e^{-2x}+1-2e^{-x}}e^{(1-q)x}\right\}e^{-x}\frac{dx}{x} = q-\frac{1}{2}+l\Gamma(q)-\frac{1}{2}l2\pi$

V. T. 128, N. 15.

7) $\int\left\{\frac{p+qe^{-mx}}{re^{mx}+s+te^{-mx}}-\frac{p+qe^{-m_1x}}{re^{m_1x}+s+te^{-m_1x}}\right\}\frac{dx}{x} = \frac{p+q}{r+s+t}\,l\frac{m_1}{m}$ (VIII, 436).

1) $\int \frac{1}{e^{\pi x}+e^{-\pi x}} \frac{dx}{1+x^2} = 1 - \frac{1}{4}\pi$ (IV, 199).

2) $\int \frac{1}{e^{\frac{1}{2}\pi x}+e^{-\frac{1}{2}\pi x}} \frac{dx}{1+x^2} = \frac{1}{2} l 2$ (VIII, 636).

3) $\int \frac{1}{e^{\frac{1}{4}\pi x}+e^{-\frac{1}{4}\pi x}} \frac{dx}{1+x^2} = \frac{1}{2\sqrt{2}}\left(\pi - l\frac{\sqrt{2}+1}{\sqrt{2}-1}\right)$ (IV, 200).

4) $\int \frac{1}{e^{\pi x}+e^{-\pi x}} \frac{dx}{q^2+x^2} = \frac{1}{4q}\left\{Z'\left(\frac{q}{2}+\frac{3}{4}\right) - Z'\left(\frac{q}{2}+\frac{1}{4}\right)\right\}$ (IV, 199).

5) $\int \frac{1}{e^{px}+e^{-px}} \frac{dx}{q^2+x^2} = \frac{\pi}{q}\sum_1^\infty \frac{(-1)^{n-1}}{2pq+(2n-1)\pi}$ (VIII, 636*).

6) $\int \frac{e^{px}-e^{-px}}{e^{px}+e^{-px}} \frac{x\,dx}{q^2+x^2} = \pi\sum_1^\infty \frac{1}{2pq+(2n-1)\pi}$ (VIII, 636*).

7) $\int \frac{x}{e^{\pi x}-e^{-\pi x}} \frac{dx}{1+x^2} = \frac{1}{2} l 2 - \frac{1}{4}$ (VIII, 636).

8) $\int \frac{x}{e^{\frac{1}{2}\pi x}-e^{-\frac{1}{2}\pi x}} \frac{dx}{1+x^2} = \frac{1}{4}\pi - \frac{1}{2}$ (IV, 200).

9) $\int \frac{x}{e^{\frac{1}{4}\pi x}-e^{-\frac{1}{4}\pi x}} \frac{dx}{1+x^2} = \frac{1}{4}\pi\sqrt{2} - 1 + \frac{1}{2\sqrt{2}} l\frac{\sqrt{2}+1}{\sqrt{2}-1}$ (IV, 200).

10) $\int \frac{e^{px}-e^{-px}}{e^{\pi x}-e^{-\pi x}} \frac{dx}{1+x^2} = -\frac{1}{2}p\,Cos\,p + \frac{1}{2}Sin\,p . l\{2(1+Cos\,p)\}$ $[p \leqq \pi]$ (VIII, 636).

11) $\int \frac{e^{px}-e^{-px}}{e^{\frac{1}{2}\pi x}-e^{-\frac{1}{2}\pi x}} \frac{dx}{1+x^2} = \frac{1}{2}\pi\,Sin\,p + \frac{1}{2}Cos\,p . l\frac{1-Sin\,p}{1+Sin\,p}$ $\left[p \leqq \frac{1}{2}\pi\right]$ (VIII, 637).

12) $\int \frac{e^{px}+e^{-px}}{e^{\pi x}-e^{-\pi x}} \frac{x\,dx}{1+x^2} = \frac{1}{2}(p\,Sin\,p - 1) + \frac{1}{2}Cos\,p . l\{2(1+Cos\,p)\}$ $[p \leqq \pi]$ (VIII, 636).

13) $\int \frac{e^{px}+e^{-px}}{e^{\frac{1}{2}\pi x}-e^{-\frac{1}{2}\pi x}} \frac{x\,dx}{1+x^2} = \frac{1}{2}\pi\,Cos\,p - 1 + \frac{1}{2}Sin\,p . l\frac{1+Sin\,p}{1-Sin\,p}$ $\left[p < \frac{1}{2}\pi\right]$ (VIII, 637).

14) $\int \frac{x}{e^{2\pi x}-1} \frac{dx}{1+x^2} = \frac{1}{2}A - \frac{1}{4}$ (IV, 200).

15) $\int \frac{x}{e^{2\pi q x}-1} \frac{dx}{1+x^2} = \frac{1}{2} l q + \frac{1}{4q} - \frac{1}{2}Z'(1+q)$ (IV, 200).

16) $\int \frac{x}{e^{px}-e^{-px}} \frac{dx}{q^2+x^2} = \frac{\pi}{4pq} + \frac{\pi}{2}\sum_1^\infty \frac{(-1)^n}{pq+n\pi}$ (VIII, 635*).

17) $\int \frac{e^{px}+e^{-px}}{e^{px}-e^{-px}} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2pq} + \pi \sum_1^\infty \frac{1}{pq+n\pi}$ (VIII, 635*).

18) $\int \frac{e^{(r-p)x}-e^{(p-r)x}}{e^{rx}-e^{-rx}} \frac{dx}{q^2+x^2} = \frac{\pi}{q} \sum_1^\infty \frac{1}{qr+n\pi} \operatorname{Sin} \frac{np\pi}{r}$

19) $\int \frac{e^{(r-p)x}+e^{(r-p)x}}{e^{rx}-e^{-rx}} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2qr} + \pi \sum_1^\infty \frac{1}{qr+n\pi} \operatorname{Cos} \frac{np\pi}{r}$

(18, 19) $[p^2 < r^2]$ (VIII, 635*).

20) $\int \frac{x}{e^{2\pi x}-1} \frac{dx}{q^2+x^2} = -\frac{1}{4q} + \frac{1}{2} l q - \frac{1}{2} Z'(q)$ (IV, 200).

21) $\int \frac{x}{e^{2\pi x}-1} \frac{dx}{q^2-x^2} = \frac{1}{4q^2} \sum_0^\infty \frac{(-1)^n}{n+1} B_{2n+1} \frac{1}{q^{2n}}$ (IV, 200).

22) $\int \frac{x}{e^{2\pi x}-1} \frac{dx}{(q^2+x^2)^2} = -\frac{1}{8q^3} - \frac{1}{4q^2} + \frac{1}{4q} \frac{dZ'(q)}{dq} = \frac{1}{4q^4} \sum_0^\infty \frac{1}{q^{2n}} B_{2n+1}$ (IV, 200).

23) $\int \frac{x}{e^{2\pi x}-1} \frac{dx}{(q^2-x^2)^2} = \frac{1}{4q^4} \sum_0^\infty (-1)^n \frac{1}{q^{2n}} B_{2n+1}$ (IV, 200).

F. Alg. irrat.; Exponent. TABLE 98. Lim. 0 et ∞.

1) $\int e^{-x} dx \sqrt[q]{x^b} = \frac{q}{b+q} \cdot \frac{2q}{b+2q} \cdot \frac{3q}{b+3q} \cdots$ (IV, 201).

2) $\int e^{-qx} x^{a-\frac{1}{2}} dx = \frac{1^{a/2}}{(2q)^a} \sqrt{\frac{\pi}{q}}$ (VIII, 247).

3) $\int e^{-\frac{1+x^2}{2qx}} dx \sqrt{x} = \frac{1+q}{\sqrt[q]{e}} \sqrt{2q\pi}$ (VIII, 287).

4) $\int e^{-p^2x-\frac{q^2}{x}} dx \sqrt{x} = \frac{1}{2p^3} (1+2pq) e^{-2pq} \sqrt{\pi}$ (VIII, 451).

5) $\int e^{-\left(px+\frac{q}{x}\right)} x^{a-\frac{1}{2}} dx = \left(\frac{q}{p}\right)^{\frac{1}{2}a} e^{-2\sqrt{pq}} \sqrt{\frac{\pi}{p}} \cdot \sum_0^\infty \frac{(a+1-n)^{2n/1}}{2^{n/2}(2\sqrt{pq})^n}$ (VIII, 483).

6) $\int e^{-x^a} x^{(b+\frac{1}{2})a-1} dx = \frac{1^{b/2}}{2^b a} \sqrt{\pi}$ V. T. 98, N. 2.

7) $\int \frac{dx\sqrt{x}}{e^x+e^{-x}} = \frac{1}{2}\sqrt{\pi} \cdot \sum_0^\infty (-1)^n \frac{1}{\sqrt{2n+1}^3}$ V. T. 115, N. 33.

8) $\int \frac{e^x-e^{-x}}{(e^x+e^{-x})^2} dx \sqrt{x} = \frac{1}{2}\sqrt{\pi} \cdot \sum_0^\infty (-1)^n \frac{1}{\sqrt{2n+1}}$ V. T. 98, N. 25.

9) $\int \frac{e^x - e^{-x}}{(e^x+e^{-x}+1)^2}\, dx\sqrt{x} = \frac12\, Cosec\frac{\pi}{3}.\sqrt{\pi}.\sum_1^{\infty}(-1)^{n-1} Sin\frac{n\pi}{3}.\sqrt{\frac1n}$ V. T. 98, N. 26.

10) $\int e^{-px}\frac{dx}{\sqrt x} = \sqrt{\frac{\pi}{p}}$ (VIII, 264).

11) $\int e^{pxi}\frac{dx}{\sqrt x} = e^{\frac14\pi i}\sqrt{\frac{\pi}{p}}$ (IV, 202).

12) $\int e^{-\frac{1+x^2}{2qx}}\frac{dx}{\sqrt x} = \frac{\sqrt{2q\pi}}{\sqrt[q]{e}}$ (VIII, 287) =

13) $\int e^{-\frac{1+x^2}{2qx}}\frac{dx}{x\sqrt x}$ (IV, 202).

14) $\int e^{-\frac{1+x^2}{2qx}}\frac{dx}{x^2\sqrt x} = \frac{1+q}{\sqrt[q]{e}}\sqrt{2q\pi}$ (IV, 202).

15) $\int e^{-\left(p^2x+\frac{q^2}{x}\right)}\frac{dx}{\sqrt x} = \frac1p e^{-2pq}\sqrt\pi$ (VIII, 428).

16) $\int e^{-\left(p^2x+\frac{q^2}{x}\right)}\frac{dx}{x\sqrt x} = \frac1q e^{-2pq}\sqrt\pi$ (VIII, 428).

17) $\int e^{-\left(px+\frac qx\right)}\frac{dx}{x^{a+\frac12}} = \left(\frac pq\right)^{\frac12 a} e^{-2\sqrt{pq}}\sqrt{\frac{\pi}{p}}.\sum_0^{\infty}\frac{(a-n)^{2n|1}}{2^{n/2}(2\sqrt{pq})^n}$ (VIII, 433).

18) $\int e^{-x}\sqrt[q]{x^b}\,\frac{dx}{x} = \frac qb\,\frac{q}{b+q}.\frac{2q}{b+2q}\,\frac{3q}{b+3q}\dots$ (IV, 202).

19) $\int e^{-\frac12 p\left(x+\frac1x\right)}\frac{\sqrt{1-x^2}^{\,a}}{1+x^2}\,x^{2a}\,dx = \frac{2a+1}{(-1)^a}\sum_0^{a+1}\frac{(a+n)^{2n|-1}}{1^{2n+1|1}}\,2^{2n+1}\frac{d^{2n}}{dp^{2n}}.\frac{e^{-p}}{p}$ (VIII, 432).

20) $\int \left(e^{p\sqrt x}+e^{-p\sqrt x}\right)e^{-r^2x}\frac{dx}{\sqrt x} = \frac2r\, e^{\frac{p^2}{4r^2}}\sqrt\pi$ (VIII, 570).

21) $\int \left(e^{-px}-e^{-qx}\right)\frac{dx}{x^{2-\frac1a}} = \frac{a}{a-1}\Gamma\left(\frac1a\right)\left(q^{\frac{a-1}{a}}-p^{\frac{a-1}{a}}\right)$ $[q>p>0]$ (IV, 202).

22) $\int \left(e^{q\sqrt x}-e^{-q\sqrt x}\right)^2 e^{-p^2x}\frac{dx}{\sqrt x} = \frac{2\sqrt\pi}{r}\left(e^{\frac{q^2}{r^2}}-1\right)$ (VIII, 570).

23) $\int \frac{Sin p.\sqrt{\{\sqrt{p^2+x^2}+p\}} - Cos p.\sqrt{\{\sqrt{p^2+x^2}-p\}}}{\sqrt{p^2+x^2}}e^{-x}dx = 0$ (IV, 203).

24) $\int \frac{Sin p.\sqrt{\{\sqrt{p^2+x^2}-p\}} + Cos p.\sqrt{\{\sqrt{p^2+x^2}+p\}}}{\sqrt{p^2+x^2}}e^{-x}dx = 0$ (IV; 203).

25) $\int \frac{1}{e^x+e^{-x}}\frac{dx}{\sqrt x} = \sqrt\pi.\sum_0^{\infty}\frac{(-1)^n}{\sqrt{2n+1}}$ (VIII, 487).

26) $\int \frac{1}{e^x+e^{-x}+1}\frac{dx}{\sqrt x} = Cosec\frac{\pi}{3}.\sqrt\pi.\sum_1^{\infty}(-1)^{n-1}Sin\frac{n\pi}{3}.\sqrt{\frac1n}$ (VIII, 487).

F. Alg. irrat.; Exponent.	TABLE 98, suite.	Lim. 0 et ∞.

27) $\int \frac{Cos\,\lambda - e^{-x} - Cos\{(a+1)\lambda\}.e^{-ax} + Cos\,a\lambda.e^{-(a+1)x}}{e^x + e^{-x} - 2\,Cos\,\lambda} \frac{dx}{\sqrt{x}} = \sqrt{\pi}.\sum_1^a \frac{Cos\,n\lambda}{\sqrt{n}}$ V. T. 133, N. 6.

28) $\int \frac{Sin\,\lambda - Sin\{(a+1)\lambda\}.e^{-ax} + Sin\,a\lambda.e^{-(a+1)x}}{e^x + e^{-x} - 2\,Cos\,\lambda} \frac{dx}{\sqrt{x}} = \sqrt{\pi}.\sum_1^a \frac{Sin\,n\lambda}{\sqrt{n}}$ V. T. 133, N. 5.

F. Algébrique; Exp. sous forme irrat.	TABLE 99.	Lim. 0 et ∞.

1) $\int e^{-x}x\,dx\sqrt{1-e^{-x}} = \frac{4}{3}\left(\frac{4}{3} - l2\right)$ V. T. 117, N. 2.

2) $\int e^{-x}x\,dx\sqrt{1-e^{-2x}} = \frac{1}{4}\pi\left(\frac{1}{2} + l2\right)$ V. T. 117, N. 1.

3) $\int e^{-x}x\,dx\sqrt{1-e^{-2x}}^{\,2a-1} = \frac{1^{a/2}\pi}{2^{a+2}1^{a/1}}\{A + Z'(a+1) + 2\,l2\}$ V. T. 117, N. 3.

4) $\int \frac{x\,dx}{\sqrt{e^x-1}} = 2\pi\,l2$ V. T. 118, N. 3.

5) $\int \frac{x^2\,dx}{\sqrt{e^x-1}} = 4\pi\left\{(l2)^2 + \frac{1}{12}\pi^2\right\}$ V. T. 118, N. 13.

6) $\int \frac{xe^{-x}\,dx}{\sqrt{e^x-1}} = \frac{1}{2}\pi(2\,l2 - 1)$ V. T. 118, N. 5.

7) $\int \frac{xe^{-2x}\,dx}{\sqrt{e^x-1}} = \frac{3}{4}\pi\left(l2 - \frac{7}{12}\right)$ V. T. 118, N. 6.

8) $\int \frac{xe^{-x}\,dx}{\sqrt{e^{2x}-1}} = 1 - l2$ V. T. 118, N. 4.

9) $\int \frac{xe^{-2ax}\,dx}{\sqrt{e^{2x}-1}} = -\frac{2^{a-1/2}}{1^{a/2}}\left\{l2 + \sum_1^{2a-1}\frac{(-1)^n}{n}\right\}$ V. T. 118, N. 6.

10) $\int \frac{xe^{-(2a+1)x}\,dx}{\sqrt{e^{2x}-1}} = \frac{3^{a-1/2}}{2^{a/2}}\,\frac{\pi}{2}\left\{l2 + \sum_1^{2a}\frac{(-1)^n}{n}\right\}$ V. T. 118, N. 5.

11) $\int \frac{x^2e^x\,dx}{\sqrt{e^x-1}^{\,3}} = 8\pi\,l2$ V. T. 99, N. 4.

12) $\int \frac{x^3e^x\,dx}{\sqrt{e^x-1}^{\,3}} = 24\pi\left\{(l2)^2 + \frac{1}{12}\pi^2\right\}$ V. T. 99, N. 5.

13) $\int \frac{x\,dx}{\sqrt[3]{e^{3x}-1}} = \frac{\pi}{3\sqrt{3}}\left\{l3 + \frac{\pi}{3\sqrt{3}}\right\}$ V. T. 118, N. 7.

14) $\int \frac{x\,dx}{\sqrt[3]{e^{3x}-1}^2} = \frac{\pi}{3\sqrt{3}}\left\{l3 - \frac{\pi}{3\sqrt{3}}\right\}$ V. T. 118, N. 8.

15) $\int \frac{x^a e^{-qx}\,dx}{\sqrt[b]{1-e^{-bx}}^{b-c}} = 1^{a/1} \sum_0^\infty \frac{(b-c)^{n/b}}{b^{n/b}} \frac{1}{(q+bn)^{a+1}}$ V. T. 118, N. 14.

16) $\int \frac{x}{p^2 e^x + (q^2-p^2)} \frac{e^x\,dx}{\sqrt{e^x-1}} = \frac{2\pi}{pq} l \frac{p+q}{p}$ V. T. 138, N. 10.

17) $\int \frac{x}{p^2 e^x - (p^2+q^2)} \frac{e^x\,dx}{\sqrt{e^x-1}} = \frac{2\pi}{pq} Arctg \frac{q}{p}$ V. T. 138, N. 11.

18) $\int \frac{\{q\sqrt{e^x-1} - ri\}^{-p} + \{q\sqrt{e^x-1}+ri\}^{-p}}{(e^x-1)^{\frac{3-p}{2}}} x e^{-x}\,dx = \frac{4}{r}\frac{\pi}{p-1}\left\{q^{1-p} - (q+r)^{1-p}\right\}$

V. T. 141, N. 12.

1) $\int e^{ix}(ix)^{p-1}\,dx = 2\,Sin\,p\pi . \Gamma(p)\,[p<1]$ (VIII, 288).

2) $\int e^{ix}(-ix)^{p-1}\,dx = 0\,[p<1]$ (VIII, 288) $=$ 3) $\int e^{ix}(r-ix)^{p-1}\,dx\,[p\leqq 1]$ (IV, 205).

4) $\int e^{ix}(r+ix)^{p-1}\,dx = \frac{2\pi e^{-r}}{\Gamma(1-p)}\,[p\leqq 1]$ (IV, 205).

5) $\int e^{ix}(ix)^{p-1}(-ix)^{q-1}\,dx = 2\,Sin\,p\pi . \Gamma(p+q-1)\,[p<1, q\leqq 1]$ (VIII, 288).

6) $\int e^{-x^2+2px} x^2\,dx = \frac{1}{2}(1+2p^2)e^{p^2}\sqrt{\pi}$ (IV, 205).

7) $\int e^{-px^2+2qx} x\,dx = \frac{q}{p}\sqrt{\frac{\pi}{p}} . e^{\frac{q^2}{p}}$ (IV, 205).

8) $\int e^{-px^2+2qx} x^{a+1}\,dx = \frac{1}{2^a p}\sqrt{\frac{\pi}{p}} . \frac{d^a}{dq^a} . q e^{\frac{q^2}{p}}$ (IV, 205).

9) $\int e^{-px^2-qx} x^a\,dx = (-1)^a\left(\frac{q}{2p}\right)^a e^{\frac{q^2}{4p}} . \sqrt{\frac{\pi}{p}} . \sum_0^\infty \frac{a^{2n|-1}}{1^{n|1}}\left(\frac{p}{q^2}\right)^n$ (IV, 205).

10) $\int e^{(px^2+qx)i} x^a\,dx = (-1)^a(1+i)\left(\frac{q}{2p}\right)^a e^{-\frac{q^2 i}{4p}} \sqrt{\frac{\pi}{2p}} . \sum_0^\infty \frac{a^{2n|-1}}{1^{n|1}}\left(\frac{pi}{q^2}\right)^n$ (IV, 205).

11) $\int e^{-(px^2+qx)i} x^a dx = (-1)^a (1-i) \left(\frac{q}{2p}\right)^a e^{\frac{q^2 i}{4p}} \sqrt{\frac{\pi}{2p}} . \sum_0^\infty \frac{a^{2n|-1}}{1^{n|1}} \left(\frac{p}{q^2 i}\right)^n$ (IV, 205).

12) $\int e^{-x^2} (x-pi)^{2a} dx = \frac{1^{a/2}}{2^a} \sqrt{\pi} . \sum_0^\infty (-1)^n \frac{a^{n|-1}}{1^{2n|1}} (2p)^{2n}$ Laplace, Probab.

13) $\int e^{-qe^x} x e^x dx = -\frac{1}{q}(A + lq)$ V. T. 256, N. 2.

14) $\int e^{-qe^{2x}} x e^x dx = -\frac{1}{4}\left\{A + l(4q)\right\} \sqrt{\frac{\pi}{q}}$ V. T. 256, N. 8.

F. Alg. rat. ent. x; Exp. polynôme en dén.

TABLE 101.

Lim. $-\infty$ et ∞.

1) $\int \frac{x\,dx}{p^2 e^x + q^2 e^{-x}} = \frac{\pi}{2pq} l \frac{q}{p}$ V. T. 135, N. 5.

2) $\int \frac{x\,dx}{p^2 e^x - q^2 e^{-x}} = \frac{p}{4q} \pi^2$ V. T. 135, N. 6.

3) $\int \frac{e^{(p-1)x} x\,dx}{e^{rx} - 1} = \left\{\frac{\pi}{r} \operatorname{Cosec}\left(\frac{p+1}{r}\pi\right)\right\}^2$ $[p^2 < 1]$ V. T. 135, N. 8.

4) $\int \frac{1-e^{px}}{e^x - e^{-x}} x\,dx = -\left(\frac{\pi}{2} \operatorname{Tang} \frac{1}{2} p\pi\right)^2$ $[p < 1]$ V. T. 140, N. 3.

5) $\int e^{px} \frac{x\,dx}{e^x + q} = \pi q^{p-1} \operatorname{Cosec} p\pi . (lq - \pi \operatorname{Cot} p\pi)$ $[p < 1]$ V. T. 135, N. 1.

6) $\int \frac{x}{e^x - 1} \frac{dx}{e^{(p-1)x}} = (\pi \operatorname{Cosec} p\pi)^2$ $[p < 1]$ V. T. 140, N. 1.

7) $\int \frac{1-e^{-x}}{1-e^{-2qx}} e^{(1-q)x} x\,dx = \left(\frac{\pi}{2q} \operatorname{Tg} \frac{\pi}{2q}\right)^2$ $[q > 1]$ V. T. 135, N. 10.

8) $\int \frac{1-e^{-2x}}{1-e^{-2qx}} e^{(2-q)x} x\,dx = \left(\frac{\pi}{2q} \operatorname{Tg} \frac{\pi}{q}\right)^2$ $[q > 2]$ V. T. 135, N. 11.

9) $\int \frac{1-e^{-2x}}{1-e^{-2bx}} e^{-ax} x\,dx = \left(\frac{\pi}{2b}\right)^2 \operatorname{Cosec}^2 \frac{a\pi}{2b} . \operatorname{Cosec}^2 \left(\frac{a+2}{2b}\pi\right) . \operatorname{Sin}\left(\frac{a+1}{b}\pi\right) . \operatorname{Sin} \frac{\pi}{b}$ V. T. 135, N. 12.

10) $\int \frac{x e^x\,dx}{(q+e^x)^2} = \frac{1}{q} lq$ $[q < 1]$ V. T. 139, N. 1.

11) $\int \frac{x e^x\,dx}{(q+e^x)^{p+1}} = \frac{1}{pq^p}\{lq - A - Z'(p)\} = \frac{1}{pq^p}\left\{lq - \sum_1^{p-1} \frac{1}{n}\right\}$ $[p$ entier$]$ V. T. 139, N. 2.

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12) $\int \frac{x e^x dx}{(q+e^x)^{b+\frac{1}{2}}} = \frac{2}{(2b+1)q^{\frac{1}{2}+b}} \left\{ l(4q) - \sum_1^{b-1} \frac{1}{n} - 2 \sum_b^{2b-1} \frac{1}{n} \right\}$ V. T. 142, N. 5.

13) $\int \frac{x e^x dx}{(q^2+r^2 e^{2x})^p} = \frac{\Gamma(p-\frac{1}{2})\sqrt{\pi}}{4q^{2p-1} r \Gamma(p)} \left\{ 2l\frac{q}{2r} - A - Z'\left(p-\frac{1}{2}\right)\right\}$ V. T. 139, N. 3.

14) $\int \frac{x dx}{(q^2 e^x + e^{-x})^p} = \frac{-1}{2q^p} lq \frac{(\Gamma \frac{1}{2}p)^2}{\Gamma(p)}$ V. T. 140, N. 6.

15) $\int \frac{x e^{-x} dx}{(q+e^{-x})^{a+2}} = \frac{1}{(1+a)q^{a+1}} \left\{ -lq + \sum_1^a \frac{1}{n} \right\}$ V. T. 139, N. 2.

16) $\int \frac{x}{e^x+q} \frac{dx}{e^{-x}+1} = \frac{1}{2(q-1)} (lq)^2$ V. T. 140, N. 8.

17) $\int \frac{x}{qe^{-x}+1} \frac{dx}{e^x-1} = \frac{1}{2(q+1)} \{\pi^2 + (lq)^2\}$ V. T. 140, N. 10.

18) $\int \frac{e^{(p-1)x}}{e^x+q} \frac{x dx}{e^x+1} = \frac{\pi}{q-1} Cosec^2 p\pi . \{ q^p Sin p\pi . lq + (1-q^p)\pi Cos p\pi \}$ $[p^2<1]$ V. T. 140, N. 9.

19) $\int \frac{e^{px}}{qe^{-x}+1} \frac{x dx}{e^x-1} = \frac{\pi}{1+q} Cosec^2 p\pi . \{ \pi + q^p (Sin p\pi . lq - \pi Cos p\pi)\}$ $[p^2<1]$ V. T. 140, N. 11.

F. Alg. rat. ent. x^a; Exp. polynôme en dén.

TABLE 102.

Lim. $-\infty$ et ∞.

1) $\int \frac{p^2 e^x - q^2 e^{-x}}{(p^2 e^x + q^2 e^{-x})^2} x^2 dx = \frac{\pi}{pq} l\frac{q}{p}$ V. T. 101, N. 1.

2) $\int \left(\frac{x}{e^x - e^{-x}}\right)^2 dx = \frac{1}{12}\pi^2$ V. T. 139, N. 4.

3) $\int \frac{p^2 e^x + q^2 e^{-x}}{(p^2 e^x - q^2 e^{-x})^2} x^2 dx = \frac{p}{2q}\pi^2$ V. T. 101, N. 2.

4) $\int \frac{p+(1-p)e^{-x}}{(1-e^{-x})^2} e^{-px} x^2 dx = 2\pi^2 Cosec^2 p\pi$ $[p<1]$ V. T. 101, N. 6.

5) $\int \frac{q^2 e^x - e^{-x}}{(q^2 e^x + e^{-x})^{p+1}} x^2 dx = \frac{-1}{q^p} lq \frac{\{\Gamma(\frac{1}{2}p)\}^2}{\Gamma(p+1)}$ V. T. 101, N. 14.

6) $\int \frac{x^2}{e^x-1} \frac{dx}{1+qe^{-x}} = \frac{1}{3(1+q)} \{\pi^2 + (lq)^2\} lq$ V. T. 141, N. 1.

7) $\int \frac{x-lq}{e^x-1} \frac{x dx}{1-qe^{-x}} = \frac{1}{6(q-1)} \{4\pi^2 + (lq)^2\} lq$ V. T. 141, N. 5.

8) $\int \frac{x - lq}{e^x - 1} \frac{x e^{px} dx}{1 - q e^{-x}} = \frac{1}{q-1} \pi^2 Cosec^2 p\pi . \{(q^p + 1) lp - 2\pi Cot p\pi . (q^p - 1)\}$ $[q^2 < 1]$ V. T. 141, N. 6.

9) $\int \frac{x^3}{e^x - 1} \frac{dx}{1 + q e^{-x}} = \frac{1}{4(1+q)} \{\pi^2 + (lq)^2\}^2$ V. T. 141, N. 2.

10) $\int \frac{x^4}{e^x - 1} \frac{dx}{1 + q e^{-x}} = \frac{1}{15(1+q)} \{\pi^2 + (lq)^2\}^2 \{7\pi^2 + 3(lq)^2\} lq$ V. T. 141, N. 3.

11) $\int \frac{x^5}{e^x - 1} \frac{dx}{1 + q e^{-x}} = \frac{1}{6(1+q)} \{\pi^2 + (lq)^2\}^2 \{3\pi^2 + (lq)^2\}^2$ V. T. 141, N. 4.

12) $\int \frac{e^x - q e^{-x}}{(e^x + q)^2} \frac{x^2 dx}{(1 + e^{-x})^2} = \frac{1}{q-1} (lq)^2$ V. T. 101, N. 16.

13) $\int \frac{e^x + q e^{-x}}{(q e^{-x} + 1)^2} \frac{x^2 dx}{(1 - e^x)^2} = \frac{1}{q+1} \{\pi^2 + (lq)^2\}$ V. T. 101, N. 17.

14) $\int \frac{x^{2a+1} dx}{e^{px} + e^{-px}} = 0$ (VIII, 285*). 15) $\int \frac{x^{2a} dx}{e^{px} + e^{-px}} = \frac{2}{p^{2a+1}} . 1^{2a/1} \sum_0^\infty \frac{(-1)^n}{(2n+1)^{2a+1}}$ (VIII, 285*).

16) $\int \frac{e^x - e^{-x}}{(e^x + e^{-x})^2} x^{2a} dx = 0$ V. T. 102, N. 14.

F. Alg. rat. fract.;
Exponentielle. TABLE 103. Lim. $-\infty$ et ∞.

1) $\int e^{\left(px^2 + \frac{q}{x^2}\right) i} \frac{dx}{x^{2a}} = \left(\frac{p}{q}\right)^{\frac{1}{2}a} e^{2i\sqrt{pq}} (1+i) \sqrt{\frac{\pi}{2p}} . \sum_0^\infty \frac{(a+n-1)^{2n/-1}}{1^{n/1}} \left(\frac{i}{4\sqrt{pq}}\right)^n$ (IV, 210).

2) $\int e^{-\left(px^2 + \frac{q}{x^2}\right) i} \frac{dx}{x^{2a}} = \left(\frac{p}{q}\right)^{\frac{1}{2}a} e^{-2i\sqrt{pq}} (1-i) \sqrt{\frac{\pi}{2p}} . \sum_0^\infty \frac{(a+n-1)^{2n/-1}}{1^{n/1}} \left(\frac{1}{4i\sqrt{pq}}\right)^n$ (IV, 210).

3) $\int \frac{e^{px} - e^{qx}}{1 + e^{rx}} \frac{dx}{x} = l \left(Tg \frac{p\pi}{2r} . Cot \frac{q\pi}{2r}\right)$ V. T. 143, N. 3.

4) $\int \frac{e^{px} - e^{qx}}{1 - e^{rx}} \frac{dx}{x} = l \left(Sin \frac{p\pi}{r} . Cosec \frac{q\pi}{r}\right)$ V. T. 143, N. 4.

5) $\int \frac{e^{xi} dx}{q + xi} = 2\pi e^{-q}$ (IV, 211). 6) $\int \frac{(-xi)^p}{q + xi} e^{xi} dx = 2\pi q^p e^{-q}$ (IV, 211).

7) $\int \frac{(xi)^p}{q + xi} e^{-xi} dx = 0$ (IV, 211).

8) $\int \frac{e^{-pxi} dx}{q^2 + x^2} = \frac{\pi}{q} e^{-pq}$ (VIII, 444) = 9) $\int \frac{e^{pxi} dx}{q^2 + x^2}$ (VIII, 444*).

F. Alg. rat. fract.; Exponentielle. | TABLE 103, suite. | Lim. — ∞ et ∞.

10) $\int \frac{e^{(p-r)xi}\,dx}{q^2+x^2} = \frac{\pi}{q}\, e^{(p-r)q}\ [p<r<\infty] = \frac{\pi}{q}\, e^{(r-p)q}\ [0<r<p]$ (IV, 211).

11) $\int \frac{(-xi)^p}{q^2+x^2}\, e^{rxi}\,dx = \pi q^{p-1} e^{-qr} =$ 12) $\int \frac{(xi)^p}{q^2+x^2} e^{-rxi}\,dx$ (IV, 212).

13) $\int \frac{(xi)^{p+1}}{q^2-x^2}\, e^{-rxi}\,dx = \pi q^p\, Cos\left\{\frac{p+2}{2}\pi - qr\right\}$ (IV, 212).

14) $\int \frac{e^{pxi}\,dx}{(q+xi)^r} = \frac{2\pi}{\Gamma(r)} p^{r-1} e^{-pq}$ (IV, 211).

15) $\int \frac{e^{-pxi}\,dx}{(q+xi)^r} = 0 =$ 16) $\int \frac{e^{pxi}\,dx}{(q-xi)^r}$ (IV, 211).

17) $\int \frac{e^{-pxi}}{1+x^2}\, \frac{dx}{(xi)^{1-q}} = (-1)^{q-1}\pi e^p$

18) $\int \frac{e^{-pxi}}{1-x^2}\, \frac{dx}{(xi)^{1-q}} = -\frac{1}{2}\pi\, Cos\left(\frac{1}{2}q\pi - p\right)$

(17, 18) $[q<1]$ (IV, 210).

19) $\int \frac{e^{-pxi}}{q^2+x^2}\, \frac{dx}{x^r} = \frac{\pi}{q^{r+1}}\, e^{-pq+\frac{1}{2}r\pi i}$ (IV, 210).

20) $\int \frac{e^{-pxi}}{(s+xi)^r}\, \frac{dx}{q^2+x^2} = \frac{\pi}{q}\, \frac{e^{-pq}}{(q+s)^r}$ (VIII, 609).

21) $\int \frac{e^{-pxi}}{(s+xi)^t (s_1+xi)^{t_1}\cdots}\, \frac{dx}{q^2+r^2x^2} = \frac{\pi}{q}\, e^{-\frac{pq}{r}} (q+sr)^{-t} (q+s_1 r)^{-t_1}\cdots$ (VIII, 609*).

22) $\int \frac{e^{xi}\,dx}{\sqrt{q+xi}} = 2e^{-q}\sqrt{\pi}$ (IV, 212).

23) $\int e^{q+xi+\frac{pi}{4(q+xi)}}\, \frac{dx}{\sqrt{q+xi}} = \left(e^{\sqrt{pi}} + e^{-\sqrt{pi}}\right)\sqrt{\pi}$ (IV, 212).

F. Algébrique; Exponentielle. | TABLE 104. | Lim. diverses.

1) $\int_0^{2\pi} e^{axi}\, x\,dx = -\frac{2\pi i}{a}$ (VIII, 363).

2) $\int_0^{2\pi} e^{qxi}\, x\,dx = \frac{1}{q^2}\left\{(1-2q\pi i)e^{2q\pi i} - 1\right\}$ (VIII, 362).

3) $\int_0^{2\pi} \frac{e^{-axi}}{1-pe^{xi}}\, x\,dx = p^a\left\{2\pi^2 + 2\pi i l(1-p) + 2\pi i \sum_1^a \frac{1}{np^n}\right\}$ (VIII, 484).

4) $\int_0^{l2} (e^x-1)^{q-1} x e^x dx = \frac{1}{q}\left\{l2 + \sum_0^\infty \frac{(-1)^{n-1}}{q+n+1}\right\}$ V. T. 106, N. 4.

5) $\int_0^{l2} \frac{x\,dx}{1-e^{-x}} = \frac{1}{12}\pi^2$ V. T. 114, N. 1.

6) $\int_0^{l2} \frac{e^x x^2 dx}{(e^x-1)^2} = \frac{1}{6}\pi^2 - 2(l2)^2$ V. T. 104, N. 5.

7) $\int_0^{l2} \frac{x\,dx}{e^x+2e^{-x}-2} = \frac{1}{8}\pi l2$ V. T. 114, N. 3.

8) $\int_0^{l2} \frac{e^x-2e^{-x}}{(e^x+2e^{-x}-2)^2} x^2 dx = \frac{\pi}{4} l2 - (l2)^2$ V. T. 104, N. 7.

9) $\int_0^{l\frac{1+p}{1-p}} \frac{1-e^{-x}}{(p^2-q^2)(1+e^{2x})+2(p^2+q^2)e^x} \frac{xe^x dx}{\sqrt{(p^2-1)(e^{2x}+1)+2(p^2+1)e^x}} = \frac{\pi}{2pq\sqrt{1-q^2}} l\frac{pq-\{1-\sqrt{1-q^2}\}\{1-\sqrt{1-p^2}\}}{pq+\{1-\sqrt{1-q^2}\}\{1-\sqrt{1-p^2}\}}$ V. T. 122, N. 8.

10) $\int_1^\infty e^{-px}\frac{dx}{x} = -Ei(-p)$ (IV, 214).

11) $\int_1^\infty e^{-\frac{x}{p}} \frac{dx}{\sqrt{x-1}} = \frac{\sqrt{p\pi}}{\sqrt[p]{e}}$ (IV, 214).

12) $\int_1^\infty e^{-px}\frac{dx}{x^a} = \frac{(-p)^{a-1}}{1^{a-1/1}}\left\{A + lp - \sum_1^{a-1}\frac{1}{n}\right\} - \sum_1^{a-1}\frac{1}{1^{n-1/1}}\frac{(-p)^{n-1}}{a-n} + \sum_1^\infty \frac{(-p)^{a+n-1}}{n\,.\,1^{a+n/1}}$ (IV, 214*).

13) $\int_1^\infty \frac{1}{e^{px}+e^{-px}}\frac{dx}{x} = \frac{1}{\pi}\sum_0^\infty \frac{(-1)^n}{2n+1} l\left\{1+\left(\frac{2n+1}{2p}\pi\right)^2\right\}$ (IV, 214*).

14) $\int_1^\infty \frac{1}{e^{px}-e^{-px}}\frac{dx}{x} = \frac{1}{2p} + \frac{1}{\pi}\sum_1^\infty \frac{(-1)^n}{n} Arctg\frac{n\pi}{p}$ (IV, 214*).

15) $\int_1^\infty \frac{e^{\frac{1}{2}px}}{e^{px}-e^{-px}}\frac{dx}{x} = \frac{1}{2p} + \frac{1}{\pi}\sum_1^\infty \frac{(-1)^n}{n} Arctg\frac{2n\pi}{p} + \frac{1}{2\pi}\sum_0^\infty \frac{(-1)^n}{2n+1} l\left\{1+\left(\frac{2n+1}{p}\pi\right)^2\right\}$ (IV, 214*).

16) $\int_{-1}^\infty \frac{e^{-qx}dx}{\sqrt{1+x}} = e^q\sqrt{\frac{\pi}{q}}$ (IV, 215*).

F. Algébr.; Expon. } Intégr. Limites. [Lim. $k=\infty$]. TABLE 105. Lim. diverses.

1) $\int_0^\infty x^k e^{-x} dx = e^{-k} k^k \sqrt{2k\pi}$ (IV, 170).

2) $\int_0^\infty \frac{e^{px}-e^{-px}}{e^{qx}-e^{-qx}} e^{-krx}\frac{dx}{x^s} = 0\,[s<1]$ (VIII, 318).

3) $\int_0^\infty \frac{e^{-kx}}{e^x+e^{-x}}\frac{dx}{\sqrt{x}} = 0 =$

4) $\int_0^\infty \frac{e^{-kx}}{e^x+e^{-x}+1}\frac{dx}{\sqrt{x}}$ (VIII, 317).

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5) $\int_0^{\frac{1}{k}} \frac{x^{p-1} e^{-qx}\,dx}{k^{-2}+(b-x)^2} = \frac{\pi k}{2\Gamma(p)} b^{p-1} e^{-bq}$ (IV, 212*).

6) $\int_0^p (e^{-kqx}-e^{-krx})\frac{dx}{x} = l\frac{r}{q}$ (VIII, 380).

7) $\int_1^q e^{\pm\frac{x}{k}}\frac{dx}{x} = lq$ (VIII, 319).

8) $\int_a^b \left(e^{-\frac{px}{k}} - e^{-\frac{qx}{k}}\right)\frac{dx}{x} = 2l\frac{q}{p}\,[ab<0], = 0\,[ab>0]$ (VIII, 383).

F. Alg. rat. ent.; Log. en num. $l(1\pm x^a)$ — **TABLE 106.** — Lim. 0 et 1.

1) $\int l(1+x).x\,dx = \frac{1}{4}$

2) $\int l(1+x).x^{2a}\,dx = \frac{2}{2a+1}l2 + \frac{1}{2a+1}\sum_1^{2a+1}\frac{(-1)^n}{n}$

3) $\int l(1+x).x^{2a-1}\,dx = \frac{1}{2a}\sum_1^{2a}\frac{(-1)^{n-1}}{n}$

Sur 1) à 3) voyez Oettinger, Gr. 39, 121.

4) $\int l(1+x).x^{q-1}\,dx = \frac{1}{q}\left\{l2 + \sum_0^{\infty}\frac{(-1)^{n-1}}{q+n+1}\right\}$ (VIII, 592).

5) $\int l(1+x).(1+x)^{q-1}\,dx = \frac{1}{q}2^q l2 - \frac{1}{q^2}(2^q-1)$ Oettinger, Gr. 39, 121.

6) $\int l(1-x).x\,dx = -\frac{3}{4}$ (IV, 216).

7) $\int l(1-x).x^{a-1}\,dx = -\frac{1}{a}\sum_1^a\frac{1}{n}$

8) $\int l(1-x).(1-x)^{q-1}\,dx = -\frac{1}{q^2}$

9) $\int l(1+x^2).x^{2a}\,dx = \frac{1}{2a+1}\left\{l2 + (-1)^a\frac{\pi}{2} + 2(-1)^{a-1}\sum_0^{2a}\frac{(-1)^n}{2n+1}\right\}$

10) $\int l(1+x^2).x^{4a+1}\,dx = \frac{1}{2a+1}\left\{l2 - \frac{1}{2}\sum_0^{2a}\frac{(-1)^n}{n+1}\right\}$

11) $\int l(1+x^2).x^{4a-1}\,dx = \frac{1}{4a}\sum_0^{2a}\frac{(-1)^n}{n+1}$

Sur 7) à 11) voyez Oettinger, Gr. 39, 121.

12) $\int l(1+x^2).x^{p-1}\,dx = \frac{1}{p}\left\{l2 - 2\sum_0^{\infty}\frac{(-1)^n}{p+2n+2}\right\}$ (VIII, 592).

13) $\int l(1-x^2).x^{2a-1}\,dx = -\frac{1}{2a}\sum_1^a\frac{1}{n}$

14) $\int l(1-x^2).x^{2a}\,dx = \frac{2}{2a+1}\left\{l2 - \sum_1^a\frac{1}{2n+1}\right\}$

Sur 13) et 14) voyez Oettinger, Gr. 39, 121.

15) $\int l(1-x^2).\{p x^{p-1} - q x^{q-1}\} dx = Z'\left\{\left(\frac{1}{2}p+1\right) - Z'\left(\frac{1}{2}q+1\right)\right\}$ V. T. 2, N. 9.

16) $\int l(1+x^3).x^{6a} dx = \frac{1}{6a+1}\left\{2\,l2 + \frac{\pi}{\sqrt{3}} - 3\sum_{0}^{2a}\frac{(-1)^n}{3n+1}\right\}$

17) $\int l(1+x^3).x^{6a+1} dx = \frac{1}{6a+2}\left\{\frac{\pi}{\sqrt{3}} - 3\sum_{0}^{2a}\frac{(-1)^n}{3n+2}\right\}$

18) $\int l(1+x^3).x^{6a+2} dx = \frac{1}{6a+3}\left\{2\,l2 + \sum_{1}^{2a+1}\frac{(-1)^n}{n}\right\}$

19) $\int l(1+x^3).x^{6a+3} dx = \frac{1}{6a+4}\left\{-\frac{\pi}{\sqrt{3}} + 3\sum_{0}^{2a+1}\frac{(-1)^n}{3n+1}\right\}$

20) $\int l(1+x^3).x^{6a+4} dx = \frac{1}{6a+5}\left\{2\,l2 - \frac{\pi}{\sqrt{3}} + 3\sum_{0}^{2a+1}\frac{(-1)^n}{3n+2}\right\}$

21) $\int l(1+x^3).x^{6a+5} dx = \frac{1}{6a+6}\sum_{1}^{2a+2}\frac{(-1)^{n-1}}{n}$

22) $\int l(1-x^3).x^{3a} dx = \frac{1}{6a+2}\left\{l3 + \frac{\pi}{\sqrt{3}} - 6\sum_{0}^{a}\frac{1}{3n+1}\right\}$

23) $\int l(1-x^3).x^{3a+1} dx = \frac{1}{6a+4}\left\{l3 - \frac{\pi}{\sqrt{3}} - 6\sum_{0}^{a}\frac{1}{3n+2}\right\}$

24) $\int l(1-x^3).x^{3a+2} dx = -\frac{1}{3a+3}\sum_{1}^{a+1}\frac{1}{n}$

25) $\int l(1+x^4).x^{4a} dx = \frac{1}{4a+1}\left\{l2 + \frac{(-1)^a}{\sqrt{2}}\left(\pi + l\frac{2+\sqrt{2}}{2-\sqrt{2}}\right) + (-1)^a\, 4\sum_{0}^{a}\frac{(-1)^n}{4n+1}\right\}$

26) $\int l(1+x^4).x^{4a+1} dx = \frac{1}{4a+2}\left\{l2 + \frac{1}{2}(-1)^a\pi + 2(-1)^{a-1}\sum_{0}^{a}\frac{(-1)^n}{2n+1}\right\}$

27) $\int l(1+x^4).x^{4a+2} dx = \frac{1}{4a+3}\left\{l2 + \frac{(-1)^a}{\sqrt{2}}\left(\pi + l\frac{2-\sqrt{2}}{2+\sqrt{2}}\right) + (-1)^a\, 4\sum_{0}^{a}\frac{(-1)^n}{4n+3}\right\}$

28) $\int l(1+x^4).x^{8a+3} dx = \frac{1}{4a+2}\left\{l2 + \frac{1}{2}\sum_{1}^{2a+1}\frac{(-1)^n}{n}\right\}$

29) $\int l(1+x^4).x^{8a-1} dx = \frac{1}{8a}\sum_{1}^{2a}\frac{(-1)^{n-1}}{n}$

30) $\int l(1-x^4).x^{4a} dx = \frac{1}{4a+1}\left\{3\,l2 + \frac{1}{2}\pi - 4\sum_{0}^{a}\frac{1}{4n+1}\right\}$

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F. Alg. rat. ent.;
Log. en num. $l(1 \pm x^a)$. **TABLE 106, suite.** Lim. 0 et 1.

31) $\int l(1-x^4).x^{4a+1}\,dx = \frac{1}{2a+1}\left\{l2 - \sum_0^a \frac{1}{2n+1}\right\}$

32) $\int l(1-x^4).x^{4a+2}\,dx = \frac{1}{4a+3}\left\{3\,l2 - \frac{1}{2}\pi - 4\sum_0^a \frac{1}{4n+3}\right\}$

33) $\int l(1-x^4).x^{4a+3}\,dx = \frac{-1}{4a+4}\sum_1^{a+1} \frac{1}{n}$

34) $\int \{l(1+x^q)\}^a.(1+x^q)^r x^{q-1}\,dx = (-1)^{a-1}\frac{1^{a/1}}{q(r+1)^{a+1}} + \frac{2^{r+1}}{q}\sum_0^a (-1)^n (l2)^{a-n}\frac{1^{n/1}}{(r+1)^{n+1}}$

35) $\int \{l(1-x^q)\}^a.(1-x^q)^r\,x^{q-1}\,dx = (-1)^a\frac{1^{a/1}}{q(r+1)^{a+1}}$

Sur 16) à 35) voyez Oettinger, Gr. 39, 121.

F. Alg. rat. ent.;
Log. en num. d'autre forme. **TABLE 107.** Lim. 0 et 1.

1) $\int l\frac{1}{x}.x^p dx = \frac{1}{(p+1)^2}$ (VIII, 576). 2) $\int\left(l\frac{1}{x}\right)^{a-\frac{1}{2}}.x^{p-1}dx = \frac{1^{a/2}}{(2p)^a}\sqrt{\frac{\pi}{p}}$ V. T. 98, N. 2.

3) $\int\left(l\frac{1}{x}\right)^{q-1}.x^{p-1}dx = \frac{1}{p^q}\Gamma(q)$ (VIII, 554).

4) $\int\left(l\frac{1}{x}\right)^{p-1}.x^{q+ri-1}dx = \frac{\Gamma(p)}{(q+ri)^p}$ V. T. 81, N. 3.

5) $\int l\frac{1}{x}.(1-x)^{q-1}x^{p-1}dx = \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}\{Z'(p+q)-Z'(p)\}, = \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}\sum_0^q \frac{1}{n+p-1}$ [q entier] (IV, 215).

6) $\int (lx)^b.(1+x^q)^a\,x^{p-1}\,dx = (-1)^b\,1^{b/1}\sum_0^a \binom{a}{n}\frac{1}{(p+nq)^{b+1}}$ Oettinger, Gr. 39, 241.

7) $\int (lx)^b.(1-x^q)^a\,x^{p-1}\,dx = (-1)^b\,1^{b/1}\sum_0^a \binom{a}{n}\frac{(-1)^n}{(p+nq)^{b+1}}$ (IV, 215).

8) $\int\left\{\left(l\frac{1}{x}\right)^{q-1} - x^{p-1}(1-x)^{q-1}\right\}dx = \frac{\Gamma(1+q)}{q\Gamma(p+q)}\{\Gamma(p+q)-\Gamma(p)\}$ V. T. 81, N. 14.

9) $\int l\left(x+\frac{1}{x}\right).x^{2a-1}dx = \frac{1}{a}\left\{\frac{1}{2a} + l2 - \sum_0^\infty \frac{(-1)^n}{2a+n+1}\right\}$ (VIII, 422).

10) $\int l(1+x+x^2).x^{3a}dx = \frac{1}{3a+1}\left\{\frac{3}{2}l3 + \frac{\pi}{2\sqrt{3}} - 2 + \sum_1^a \frac{9n-1}{(3n-1)3n(3n+1)}\right\}$

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11) $\int l(1+x+x^2).x^{3a+1}\,dx = \frac{1}{3a+2}\left\{\frac{3}{2}l3 - \frac{\pi}{2\sqrt{3}} + \sum_1^a \frac{9n+2}{3n(3n+1)(3n+2)}\right\}$

12) $\int l(1+x+x^2).x^{3a-1}\,dx = \frac{1}{3a}\sum_0^{a-1}\frac{9n+5}{(3n+1)(3n+2)(3n+3)}$

13) $\int l(1-x+x^2).x^{3a}\,dx = \frac{(-1)^a}{3a+1}\left\{\frac{\pi}{\sqrt{3}} - 2 + \sum_1^a \frac{(-1)^n(9n+1)}{(3n-1)3n(3n+1)}\right\}$

14) $\int l(1-x+x^2).x^{3a+1}\,dx = \frac{(-1)^a}{3a+2}\left\{\frac{\pi}{\sqrt{3}} - 2 + \sum_1^a \frac{(-1)^n(9n+4)}{3n(3n+1)(3n+2)}\right\}$

15) $\int l(1-x+x^2).x^{3a-1}\,dx = \frac{(-1)^{a-1}}{3a}\sum_0^{a-1}\frac{(-1)^n(9n+7)}{(3n+1)(3n+2)(3n+3)}$

16) $\int l(1+x^2+x^4).x^{6a}dx = \frac{1}{6a+1}\left\{\frac{3}{2}l3 + \frac{1}{2}\pi\sqrt{3} - 4 + 4\sum_1^a \frac{18n-5}{(6n-3)(6n-1)(6n+1)}\right\}$

17) $\int l(1+x^2+x^4).x^{6a+1}dx = \frac{1}{6a+2}\left\{\frac{3}{2}l3 + \frac{\pi}{2\sqrt{3}} - 2 + \sum_1^a \frac{9n-1}{(3n-1)3n(3n+1)}\right\}$

18) $\int l(1+x^2+x^4).x^{6a+2}dx = \frac{4}{3(2a+1)}\left\{\frac{1}{2} + \sum_0^a \frac{18n+1}{(6n-1)(6n+1)(6n+3)}\right\}$

19) $\int l(1+x^2+x^4).x^{6a+3}dx = \frac{1}{6a+4}\left\{\frac{3}{2}l3 - \frac{\pi}{2\sqrt{3}} + \sum_1^a \frac{9n+2}{3n(3n+1)(3n+2)}\right\}$

20) $\int l(1+x^2+x^4).x^{6a+4}dx = \frac{1}{6a+5}\left\{\frac{3}{2}l3 - \frac{1}{2}\pi\sqrt{3} + 4\sum_1^a \frac{18n+7}{(6n+1)(6n+3)(6n+5)}\right\}$

21) $\int l(1+x^2+x^4).x^{6a+5}dx = \frac{1}{6a+6}\sum_0^a \frac{9n+5}{(3n+1)(3n+2)(3n+3)}$

Sur 10) à 21) voyez Oettinger, Gr. 39, 121

22) $\int l(q+lx).x^{p-1}\,dx = \frac{1}{p}\left\{lq - e^{-pq}Ei(pq)\right\}$ V. T. 125, N. 1.

23) $\int l(q-lx).x^{p-1}\,dx = \frac{1}{p}\left\{lq - e^{pq}Ei(-pq)\right\}$ V. T. 125, N. 2.

F. Alg. rat. fract. à dén. bin.; Log. en num. lx. TABLE 108. Lim. 0 et 1.

1) $\int lx\frac{dx}{1+x} = -\frac{1}{12}\pi^2$ (VIII, 264).

2) $\int lx\frac{x\,dx}{1+x} = \frac{1}{12}\pi^2 - 1$ V. T. 30, N. 2 et T. 108, N. 1.

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3) $\int lx \frac{x^2 dx}{1+x} = \frac{3}{4} - \frac{1}{12}\pi^2$ V. T. 107, N. 1 et T. 108, N. 2.

4) $\int lx . x^{2a} \frac{dx}{1+x} = -\frac{1}{12}\pi^2 + \sum_1^{2a} \frac{(-1)^{n-1}}{n^2}$

5) $\int lx . x^{2a-1} \frac{dx}{1+x} = \frac{1}{12}\pi^2 + \sum_1^{2a-1} \frac{(-1)^n}{n^2}$

Sur 4) et 5) voyez Oettinger, Gr. 39, 425.

6) $\int lx \frac{dx}{1-x} = -\frac{1}{6}\pi^2$ (VIII, 264).

7) $\int lx \frac{x dx}{1-x} = 1 - \frac{1}{6}\pi^2$ V. T. 30, N. 2 et T. 108, N. 6.

8) $\int lx . x^{p-1} \frac{dx}{1-x} = -\sum_0^\infty \frac{1}{(p+n)^2}$ (IV, 217).

9) $\int lx \frac{1+x}{1-x} dx = 1 - \frac{1}{3}\pi^2$ V. T. 30, N. 2 et T. 108, N. 6.

10) $\int lx \frac{dx}{1+x^2} = \sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ (VIII, 474).

11) $\int lx \frac{dx}{1-x^2} = -\frac{1}{8}\pi^2$ (VIII, 567).

12) $\int lx \frac{x^{q-1} dx}{1-x^{2q}} = -\frac{\pi^2}{8q^2}$ (VIII, 567).

13) $\int lx \frac{1-x^2}{1+x^{2p}} x^{p-1} dx = -\left(\frac{\pi}{2p}\right)^2 Sin \frac{\pi}{2p} . Sec^2 \frac{\pi}{2p}$ (IV, 217).

14) $\int lx \frac{1+x^2}{1-x^{2p}} x^{p-1} dx = -\left(\frac{\pi}{2p}\right)^2 Sec^2 \frac{\pi}{2p}$ (IV, 217).

15) $\int lx \frac{x^{a-1} + x^{b-a-1}}{1-x^b} dx = -\left(\frac{\pi}{b}\right)^2 Cosec^2 \frac{a\pi}{b}$ (IV, 217).

F. Alg. rat. fract. à dén. binôme; Log. en num. $(lx)^a$ pour a spécial. TABLE 109. Lim. 0 et 1.

1) $\int (lx)^2 . x^a \frac{dx}{1+x} = (-1)^a \sum_a^\infty \frac{(-1)^n}{(n+1)^3}$

2) $\int (lx)^2 . x^a \frac{dx}{1-x} = 2 \sum_a^\infty \frac{1}{(1+n)^3}$

Sur 1) et 2) voyez Oettinger, Gr. 39, 425.

3) $\int (lx)^2 \frac{dx}{1+x^2} = \frac{1}{16}\pi^3$ (IV, 219).

4) $\int (lx)^2 . x^{2a} \frac{dx}{1-x^2} = 2 \sum_a^\infty \frac{1}{(2n+1)^3}$ Oettinger, Gr. 39, 425.

5) $\int (lx)^2 \frac{1+x^2}{1+x^4} dx = \frac{3}{64}\pi^3 \sqrt{2}$ (VIII, 568). 6) $\int (lx)^2 \frac{1-x}{1-x^6} dx = \frac{1}{27}\pi^3 \sqrt{3}$ (IV, 219).

7) $\int (lx)^2 \frac{x^{p-q-1}+x^{p+q-1}}{1+x^{2p}} dx = \frac{\pi^3}{8p^3}\left(2 Sec^3 \frac{q\pi}{2p} - Sec \frac{q\pi}{2p}\right)$ (VIII, 568).

8) $\int (lx)^2 \frac{x^{p-q-1}-x^{p+q-1}}{1-x^{2p}} dx = \frac{\pi^3}{4p^3} Sin \frac{q\pi}{2p} . Sec^3 \frac{q\pi}{2p}$ (VIII, 568).

9) $\int (lx)^3 \frac{dx}{1+x} = -\frac{7}{120}\pi^4$ (IV, 220).

10) $\int (lx)^3 . x^a \frac{dx}{1+x} = (-1)^{a-1} \sum_a^\infty \frac{(-1)^n}{(n+1)^4}$ Oettinger, Gr. 39, 425.

11) $\int (lx)^3 \frac{dx}{1-x} = -\frac{1}{15}\pi^4$ (IV, 220).

12) $\int (lx)^3 . x^a \frac{dx}{1-x} = -\frac{1}{15}\pi^4 + 6 \sum_1^a \frac{1}{n^4}$ Oettinger, Gr. 39, 425.

13) $\int (lx)^3 \frac{dx}{1-x^2} = -\frac{1}{16}\pi^4$ V. T. 109, N. 9, 11.

14) $\int (lx)^3 . x^{2a} \frac{dx}{1-x^2} = -\frac{1}{16}\pi^4 + 6 \sum_1^a \frac{1}{(2n-1)^4}$

15) $\int (lx)^3 \frac{x^{q-1}-x^{p-q-1}}{1+x^p} dx = -\left(\frac{\pi}{p}\right)^4 Cosec^4 \frac{q\pi}{p} . Cos \frac{q\pi}{p} . \left(6 - Sin^2 \frac{q\pi}{p}\right)$

(14) et 15): Oettinger, Gr. 39, 241)

16) $\int (lx)^3 \frac{x^{q-1}+x^{p-q-1}}{1-x^p} dx = -2\left(\frac{\pi}{p}\right)^4 Cosec^4 \frac{q\pi}{p} . \left(1 + 2 Cos^2 \frac{q\pi}{p}\right)$ (IV, 219).

17) $\int (lx)^4 \frac{dx}{1+x^2} = \frac{5}{64}\pi^5$ (IV, 220).

18) $\int (lx)^4 \frac{x^{q-1}+x^{p-q-1}}{1+x^p} dx = \left(\frac{\pi}{p}\right)^5 Cosec^5 \frac{q\pi}{p} . \left(24 - 20 Sin^2 \frac{q\pi}{p} + Sin^4 \frac{q\pi}{p}\right)$

19) $\int (lx)^4 \frac{x^{q-1}-x^{p-q-1}}{1-x^p} dx = 8\left(\frac{\pi}{p}\right)^5 Cosec^5 \frac{q\pi}{p} . Cos \frac{q\pi}{p} . \left(2 + Cos^2 \frac{q\pi}{p}\right)$

Sur 18) et 19) voyez Oettinger, Gr. 39, 241

20) $\int (lx)^5 \frac{dx}{1+x} = -\frac{31}{252}\pi^6$ (IV, 220). 21) $\int (lx)^5 \frac{dx}{1-x} = -\frac{8}{63}\pi^6$ (IV, 220).

22) $\int (lx)^5 \frac{dx}{1-x^2} = -\frac{1}{8}\pi^6$ V. T. 109, N. 20, 21.

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23) $\int (lx)^5 \frac{x^{q-1} - x^{p-q-1}}{1+x^p} dx = -\left(\frac{\pi}{p}\right)^6 Cosec^6 \frac{q\pi}{p} . Cos\frac{q\pi}{p} . \left(120 - 60\, Sin^2 \frac{q\pi}{p} + Sin^4 \frac{q\pi}{p}\right)$

24) $\int (lx)^5 \frac{x^{q-1} + x^{p-q-1}}{1-x^p} dx = -8\left(\frac{\pi}{p}\right)^6 Cosec^6 \frac{q\pi}{p} . \left(15 - 15\, Sin^2 \frac{q\pi}{p} + 2\, Sin^4 \frac{q\pi}{p}\right)$

Sur 23) et 24) voyez Oettinger, Gr. 39, 241

25) $\int (lx)^6 \frac{dx}{1+x^2} = \frac{61}{256} \pi^7$ (IV, 221).

26) $\int (lx)^6 \frac{x^{q-1} + x^{p-q-1}}{1+x^p} dx = \left(\frac{\pi}{p}\right)^7 Cosec^7 \frac{q\pi}{p} . \left(720 - 840\, Sin^2 \frac{q\pi}{p} + 182\, Sin^4 \frac{q\pi}{p} - Sin^6 \frac{q\pi}{p}\right)$

27) $\int (lx)^6 \frac{x^{q-1} - x^{p-q-1}}{1-x^p} dx = 16\left(\frac{\pi}{p}\right)^7 Cosec^7 \frac{q\pi}{p} . Cos\frac{q\pi}{p} . \left(45 - 30\, Sin^2 \frac{q\pi}{p} + 2\, Sin^4 \frac{q\pi}{p}\right)$

Sur 26) et 27) voyez Oettinger, Gr. 39, 241

28) $\int (lx)^7 \frac{dx}{1+x} = -\frac{127}{240} \pi^8$ (IV, 221).

29) $\int (lx)^7 \frac{dx}{1-x} = -\frac{8}{15} \pi^8$ V. T. 109, N. 28, 30.

30) $\int (lx)^7 \frac{dx}{1-x^2} = -\frac{17}{32} \pi^8$ (IV, 221).

31) $\int (lx)^7 \frac{x^{q-1} - x^{p-q-1}}{1+x^p} dx = -\left(\frac{\pi}{p}\right)^8 Cosec^8 \frac{q\pi}{p} . Cos\frac{q\pi}{p} . \left(5040 - 4200\, Sin^2 \frac{q\pi}{p} + \right.$

$\left. + 546\, Sin^4 \frac{q\pi}{p} - Sin^6 \frac{q\pi}{p}\right)$

32) $\int (lx)^7 \frac{x^{q-1} + x^{p-q-1}}{1-x^p} dx = -16\left(\frac{\pi}{p}\right)^8 Cosec^8 \frac{q\pi}{p} . \left(315 - 420\, Sin^2 \frac{q\pi}{p} + 126\, Sin^4 \frac{q\pi}{p} - 4 Sin^6 \frac{q\pi}{p}\right)$

33) $\int (lx)^8 \frac{x^{q-1} - x^{p-q-1}}{1-x^p} dx = 128\left(\frac{\pi}{p}\right)^9 Cosec^9 \frac{q\pi}{p} . Cos\frac{q\pi}{p} . \left(315 - 315\, Sin^2 \frac{q\pi}{p} + \right.$

$\left. + 63\, Sin^4 \frac{q\pi}{p} - Sin^6 \frac{q\pi}{p}\right)$ Sur 31) à 33) voyez Oettinger, Gr. 39, 241.

F. Alg. rat. fract. à dén. binôme; Log. en num. $(lx)^a$ pour a général. TABLE 110. Lim. 0 et 1.

1) $\int (lx)^{2a} \frac{dx}{1+x} = \frac{2^{2a}-1}{2^{2a}} 1^{2a/1} \sum_1^\infty \frac{1}{n^{2a+1}}$ (IV, 221).

2) $\int (lx)^{2a-1} \frac{dx}{1+x} = \frac{1-2^{2a-1}}{2a} \pi^{2a} B_{2a-1}$ (VIII, 577).

3) $\int (lx)^{a-1} \frac{dx}{1+x} = 1^{a-1/1} \sum_0^\infty \frac{(-1)^{n+a-1}}{(n+1)^a}$ (VIII, 577).

4) $\int (lx)^{b-1} \frac{x^q\,dx}{1+x} = 1^{b-1/1} \sum_0^\infty \frac{(-1)^{n+b-1}}{(q+n+1)^b}$ (VIII, 577).

5) $\int (lx)^{2a-1} \frac{dx}{1-x} = -\frac{1}{a} 2^{2a-2} \pi^{2a} B_{2a-1}$ (VIII, 577).

6) $\int (lx)^{a-1} \frac{dx}{1-x} = (-1)^{a-1} 1^{a-1/1} \sum_0^\infty \frac{1}{(n+1)^a}$ (VIII, 577).

7) $\int (lx)^{b-1} \frac{x^q\,dx}{1-x} = (-1)^{b-1} 1^{b-1/1} \sum_0^\infty \frac{1}{(q+n+1)^b}$ (VIII, 577).

8) $\int (lx)^{p-1} \frac{x^{r-1}\,dx}{1-qx^r} = \frac{1}{qr^p} \Gamma(p) \sum_1^\infty \frac{q^n}{n^p}$ V. T. 83, N. 5.

9) $\int (lx)^{a-1} \frac{1-x^b}{1-x} dx = (-1)^{a-1} 1^{a/1} \sum_1^b \frac{1}{n^a}$ (IV, 222).

10) $\int (lx)^q . (x-1)^a x^{p-1} \left(p + \frac{ax}{x-1}\right) dx = (-1)^q \Gamma(q) \Delta^a . p^{-q}$ V. T. 83, N. 13.

11) $\int (lx)^a \frac{dx}{1+x^2} = (-1)^a 1^{a/1} \sum_0^\infty \frac{(-1)^n}{(2n+1)^{a+1}}$ (VIII, 474).

12) $\int (lx)^{2a} \frac{dx}{1-x^2} = \frac{2^{2a+1}-1}{2^{2a+1}} 1^{2a/1} \sum_1^\infty \frac{1}{n^{2a+1}}$ (IV, 222).

13) $\int (lx)^{p-1} \frac{x^q\,dx}{1-x^2} = (-1)^{p-1} \Gamma(p) \sum_0^\infty \frac{1}{(q+2n+1)^p}$ V. T. 310, N. 11.

14) $\int (lx)^a \frac{x^{p-1}\,dx}{1+x^q} = (-1)^a 1^{a/1} \sum_0^\infty \frac{(-1)^n}{(p+nq)^{a+1}}$ Oettinger, Gr. 39, 241.

15) $\int (lx)^a \frac{x^{p-1}\,dx}{1-x^q} = (-1)^a 1^{a/1} \sum_0^\infty \frac{1}{(p+nq)^{a+1}}$ (IV, 223).

16) $\int (lx)^{2a-1} \frac{x^p + x^{-p}}{1-x^q} x^{q-1}\,dx = -\sum_a^\infty \frac{(2\pi)^{2n}}{2n} \frac{1}{1^{2n-2a/1}} \left(\frac{p}{q}\right)^{2n-2a} B_{2n-1}$ V. T. 83, N. 12.

1) $\int lx \frac{dx}{(1+x)^2} = -l2$ (VIII, 590).

2) $\int lx \frac{1-(-1)^a x^{a+1}}{(1+x)^2} dx = -\frac{1}{12}(a+1)\pi^2 + \sum_1^a (-1)^{n-1} \frac{a-n+1}{n^2}$ Oettinger, Gr. 39, 425.

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3) $\int lx \frac{1-x^{a+1}}{(1-x)^2} dx = -\frac{1}{6}(a+1)\pi^2 + \sum_1^a \frac{a-n+1}{n^2}$ Oettinger, Gr. 39, 425.

4) $\int lx \frac{x\,dx}{(1+x^2)^2} = -\frac{1}{4} l2$ (VIII, 590).

5) $\int lx \frac{1-x^{2a+2}}{(1-x^2)^2} dx = -\frac{1}{8}(a+1)\pi^2 + \sum_1^a \frac{a-n+1}{(2n-1)^2}$ Oettinger, Gr. 39, 425.

6) $\int \left\{\frac{1+p\,lx}{1-x} + \frac{x\,lx}{(1-x)^2}\right\} x^{p-1} dx = -1$ (VIII, 226).

7) $\int (lx)^2 \frac{1-(-1)^a x^{a+1}}{(1+x)^2} dx = 2(a+1)\sum_a^\infty \frac{(-1)^n}{(n+1)^3} + 2\sum_1^a \frac{(-1)^{n-1}}{n^2}$

8) $\int \frac{1-x^{a-1}}{(1-x)^2}(lx)^2 dx = 2(a+1)\sum_a^\infty \frac{1}{(1+n)^3} + 2\sum_1^a \frac{1}{n^2}$

9) $\int \frac{1-x^{2a+2}}{(1-x^2)^2}(lx)^2 dx = 2\sum_a^\infty \frac{1}{(2n+1)^3} + 2\sum_1^a \frac{n}{(2n-1)^3}$

10) $\int \frac{1-(-1)^a x^{a+1}}{(1+x)^2}(lx)^3 dx = -\frac{7}{120}(a+1)\pi^4 + 6\sum_1^a (-1)^{n-1}\frac{a-n+1}{n^4}$

11) $\int \frac{1-x^{a+1}}{(1-x)^2}(lx)^3 dx = -\frac{1}{15}(a+1)\pi^4 + 6\sum_1^a \frac{a-n+1}{n^4}$

12) $\int \frac{1-x^{2a+2}}{(1-x^2)^2}(lx)^3 dx = -\frac{1}{16}(a+1)\pi^4 + 6\sum_1^a \frac{a-n+1}{(2n-1)^4}$

Sur 7) à 12) voyez Oettinger, Gr. 39, 425.

F. Alg. rat. fract. à dén. bin. composé; Log. en num. $(lx)^a$. TABLE 112. Lim. 0 et 1.

1) $\int lx \frac{1-x^2}{1+x^2}\frac{dx}{x} = -\infty =$ 2) $\int lx \frac{1+x^2}{1-x^2}\frac{dx}{x}$ (IV, 218).

3) $\int lx \frac{x^{p+q}-x^{p-q}}{1+x^{2p}}\frac{dx}{x} = \frac{\pi^2}{4p^2} \mathit{Sin}\frac{q\pi}{2p} . \mathit{Sec}^2\frac{q\pi}{2p}$ (VIII, 567).

4) $\int lx \frac{x^{p+q}+x^{p-q}}{1-x^{2p}}\frac{dx}{x} = -\frac{\pi^2}{4p^2}\mathit{Sec}^2\frac{q\pi}{2p}$ (VIII, 567).

5) $\int lx \frac{x^p-x^{-p}}{(x^p+x^{-p})^2}\frac{dx}{x} = \frac{\pi}{4p^2}$ V. T. 2, N. 12.

6) $\int lx \frac{(p+q)(x^{p-q}-x^{q-p})+(p-q)(x^{p+q}-x^{-(p+q)})}{(x^p+x^{-p})^2} \frac{dx}{x} = \frac{\pi}{2p} Sec \frac{q\pi}{2p}$ $[p>q)$ V. T. 4, N. 14.

7) $\int lx \frac{(p+q)(x^{p-q}-x^{q-p})+(q-p)(x^{p+q}-x^{-(p+q)})}{(x^p-x^{-p})^2} \frac{dx}{x} = -\frac{\pi}{2p} Tg \frac{q\pi}{2p}$ $[p>q]$ V. T. 4, N. 15.

8) $\int lx \frac{x^q-x^{-q}}{(x^q+x^{-q})^{2p+1}} \frac{dx}{x} = \frac{1}{8pq^2} \frac{\{\Gamma(p)\}^2}{\Gamma(2p)}$ V. T. 4, N. 16.

9) $\int (lx)^{2a-1} \frac{1}{x^q-x^{-q}} \frac{dx}{x} = \frac{1-2^{2a}}{4a}\left(\frac{\pi}{q}\right)^{2a} B_{2a-1}$ V. T. 84, N. 14.

10) $\int (lx)^{2a-1} \frac{1+x^q}{1-x^q} \frac{dx}{x} = -\frac{1}{a} 2^{2a-1}\left(\frac{\pi}{q}\right)^{2a} B_{2a-1}$ V. T. 83, N. 11.

11) $\int (lx)^{2a} \frac{1}{(x^q+x^{-q})^2} \frac{dx}{x} = \frac{2^{2a-1}-1}{(2q)^{2a+1}} \pi^{2a} B_{2a-1}$ V. T. 86, N. 2.

12) $\int (lx)^{2a+1} \frac{1}{(x^q+x^{-q})^2} \frac{dx}{x} = \frac{1-2^{2a}}{(4q)^{2a+1} q} 1^{2a+1/1} \sum_1^\infty \frac{1}{n^{2a+1}}$ V. T. 86, N. 3.

13) $\int (lx)^p \frac{1}{(x^q+x^{-q})^2} \frac{dx}{x} = \frac{\Gamma(p+1)}{(-2q)^{p+1}} \sum_0^\infty \frac{(-1)^{n\pm1}}{(n+1)^p}$ V. T. 86, N. 6.

14) $\int (lx)^{2a} \frac{1}{(x^q-x^{-q})^2} \frac{dx}{x} = \frac{1}{4q^{2a+1}} \pi^{2a} B_{2a-1}$ V. T. 86, N. 5.

15) $\int (lx)^{2a+1} \frac{1}{(x^q-x^{-q})^2} \frac{dx}{x} = -\frac{1}{(2q)^{2a+2}} 1^{2a+1/1} \sum_1^\infty \frac{1}{n^{2a+1}}$ V. T. 86, N. 4.

16) $\int (lx)^p \frac{1}{(x^q-x^{-q})^2} \frac{dx}{x} = -\frac{\Gamma(p+1)}{(-2q)^{p+1}} \sum_0^\infty \frac{1}{(n+1)^p}$ V. T. 86, N. 7.

17) $\int (lx)^{2a} \frac{x^q+x^{-q}}{x^p+x^{-p}} \frac{dx}{x} = \frac{\pi}{2p} \frac{d^{2a}}{dq^{2a}} . Sec \frac{q\pi}{2p}$ (VIII, 576).

18) $\int (lx)^{2a+1} \frac{x^q-x^{-q}}{x^p+x^{-p}} \frac{dx}{x} = \frac{\pi}{2p} \frac{d^{2a+1}}{dq^{2a+1}} . Sec \frac{q\pi}{2p}$ (VIII, 576).

19) $\int (lx)^{2a+1} \frac{x^q+x^{-q}}{x^p-x^{-p}} \frac{dx}{x} = \frac{\pi}{2p} \frac{d^{2a+1}}{dq^{2a+1}} . Cot \frac{q\pi}{2p}$ (VIII, 576).

20) $\int (lx)^{2a} \frac{x^q-x^{-q}}{x^p-x^{-p}} \frac{dx}{x} = \frac{\pi}{2p} \frac{d^{2a}}{dq^{2a}} . Cot \frac{q\pi}{2p}$ (VIII, 576).

21) $\int lx \frac{x^2}{1-x^2} \frac{dx}{1+x^4} = -\frac{\pi^2}{16(2+\sqrt{2})}$ (IV, 218).

F. Alg. rat. fract. à dén. trinôme; Log. en num. $(lx)^a$.	TABLE 113.	Lim. 0 et 1.

1) $\int lx \frac{dx}{1+x+x^2} = -\frac{2}{27}\pi^2$ (IV, 217*).

2) $\int lx \frac{x\,dx}{1+x+x^2} = -\frac{1}{54}\pi^2$ (IV, 218*).

3) $\int lx \frac{dx}{1-x+x^2} = -\frac{4}{27}\pi^2$ (IV, 218).

4) $\int lx \frac{x\,dx}{1-x+x^2} = -\frac{5}{108}\pi^2$ (IV, 218).

5) $\int lx \frac{\mathrm{Cos}\,\lambda - x}{1-2x\,\mathrm{Cos}\,\lambda + x^2}\,dx = -\frac{1}{6}\pi^2 + \frac{1}{2}\pi\lambda - \frac{1}{4}\lambda^2$ V. T. 88, N. 8.

6) $\int lx \frac{1-x^2}{1+2px^2+x^4}\,dx = \frac{\pi}{2\sqrt{2(p-1)}}\, l\frac{\sqrt{p-1}-\sqrt{p+1}+\sqrt{2}}{\sqrt{p-1}+\sqrt{p+1}-\sqrt{2}}$ $[p^2>1]$, $=$

$= -\frac{1}{8}\pi\,\mathrm{Arccos}\,p\,.\sqrt{\frac{2}{1-p}}$ $[p^2<1]$ V. T. 88, N. 9.

7) $\int (lx)^2 \frac{dx}{1+2x\,\mathrm{Cos}\,\lambda + x^2} = \frac{1}{6}\lambda\,\mathrm{Cosec}\,\lambda\,.(\pi^2-\lambda^2)$ (IV, 221).

8) $\int (lx)^4 \frac{dx}{1+2x\,\mathrm{Cos}\,\lambda + x^2} = \frac{1}{30}\lambda\,\mathrm{Cosec}\,\lambda\,.(\pi-\lambda^2)(7\pi^2-3\lambda^2)$ (IV, 221).

9) $\int (lx)^{2a} \frac{dx}{1+x^2-2x\,\mathrm{Cos}\,2p\pi} = \frac{1^{2a/1}}{\mathrm{Sin}\,2p\pi}\sum_1^\infty \frac{\mathrm{Sin}\,2np\pi}{n^{2a+1}}$ V. T. 88, N. 5.

10) $\int (lx)^{2a+1} \frac{\mathrm{Cos}\,2p\pi - x}{1+x^2-2x\,\mathrm{Cos}\,2p\pi}\,dx = 1^{2a+1/1}\sum_1^\infty \frac{\mathrm{Cos}\,2np\pi}{n^{2a+2}}$ V. T. 88, N. 6.

11) $\int (lx)^{r-1} \frac{\mathrm{Cos}\,\lambda - px}{1+p^2x^2-2px\,\mathrm{Cos}\,\lambda}\,x^{q-1}\,dx = (-1)^r\,\Gamma(r)\sum_1^\infty \frac{p^{n-1}\,\mathrm{Cos}\,n\lambda}{(q+n-1)^r}$ (IV, 221).

F. Alg. rat. fract.; Log. en num. d'autre forme ent.	TABLE 114.	Lim. 0 et 1.

1) $\int l(1+x)\frac{dx}{x} = \frac{1}{12}\pi^2$ (VIII, 265).

2) $\int l(1+x)\frac{(p-1)x^{p-1}-px^{-p}}{x}\,dx = 2l2 - \pi\,\mathrm{Cosec}\,p\pi$ $[p<1]$ V. T. 4, N. 1.

3) $\int l(1+x)\frac{dx}{1+x^2} = \frac{1}{8}\pi\, l2$ (VIII, 322).

4) $\int l(1+x)\frac{dx}{x(1+x)} = \frac{1}{12}\pi^2 - \frac{1}{2}(l2)^2$ V. T. 114, N. 25.

5) $\int l(1+x)\frac{dx}{(px+q)^2} = \frac{1}{p(p-q)}\, l\frac{p+q}{q} + \frac{2}{q^2-p^2}\, l2$ (VIII, 591*).

6) $\int l(1+x)\frac{dx}{(1+x)^{q+1}}=-\frac{1}{2^q q}l2+\frac{2^q-1}{2^q q^2}$

7) $\int l(1+x)\frac{1+x^{2a+1}}{1+x}dx=2l2.\sum_0^a\frac{1}{2n+1}-\sum_1^{2a+1}\frac{1}{n}\sum_1^n\frac{(-1)^{m-1}}{m}$

8) $\int l(1+x)\frac{1-x^{2a}}{1+x}dx=2l2.\sum_0^{a-1}\frac{1}{2n+1}-\sum_1^{2a}\frac{1}{n}\sum_1^n\frac{(-1)^{m-1}}{m}$

9) $\int l(1+x)\frac{1-x^{2a}}{1-x}dx=2l2.\sum_0^{a-1}\frac{1}{2n+1}+\sum_1^{2a}\frac{(-1)^n}{n}\sum_1^n\frac{(-1)^{m-1}}{m}$

10) $\int l(1+x)\frac{1-x^{2a+1}}{1-x}dx=2l2.\sum_0^a\frac{1}{2n+1}+\sum_1^{2a+1}\frac{(-1)^n}{n}\sum_1^n\frac{(-1)^{m-1}}{m}$

(6–10) Oettinger, Gr. 39, 121.

11) $\int l(1+x)\frac{1+x^2}{q^2+x^2}\,\frac{dx}{1+q^2x^2}=\frac{\pi}{2q(1+q^2)}\left\{\frac{\pi}{2}l(1+q^2)-2\,Arctg\,q\;\,lq\right\}$ (VIII, 464).

12) $\int l(1+x)\frac{1+x^2}{(1+x)^4}dx=\frac{1}{4}\left(\frac{1}{2}-l2\right)$ V. T. 114, N. 13.

13) $\int l(1+x)\frac{1+x^2}{(px+q)^2}\,\frac{dx}{(qx+p)^2}=\frac{1}{p^2-q^2}\left[\frac{1}{q-p}\left\{\frac{p+q}{pq}l(p+q)+\frac{1}{p}lq+\frac{1}{q}lp\right\}+\frac{4}{q^2-p^2}l2\right]$
V. T. 114, N. 5.

14) $\int l(1-x)\frac{dx}{x}=-\frac{1}{6}\pi^2$ (VIII, 265).

15) $\int l(1-x)\frac{1-(-1)^a x^a}{1+x}dx=\sum_1^a\frac{(-1)^n}{n}\sum_1^n\frac{1}{m}$

16) $\int l(1-x)\frac{1-x^a}{1-x}dx=-\sum_1^a\frac{1}{n}\sum_1^n\frac{1}{m}$

(15–16) Oettinger, Gr. 39, 121.

17) $\int l(1-x)\frac{dx}{1+x^2}=\frac{\pi}{8}l2+\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 114, N. 24 et T. 115, N. 19.

18) $\int l\left(1-\frac{1}{2}x\right)\frac{dx}{x}=\frac{1}{2}(l2)^2-\frac{1}{12}\pi^2$ (VIII, 699).

19) $\int l(1-2x)\frac{dx}{x}=-\frac{1}{4}\pi^2+\pi i l2$ (VIII, 699).

20) $\int l(p+x)\frac{dx}{p+x^2}=\frac{1}{2\sqrt{p}}Arccot(\sqrt{p}).l\{(1+p)p\}$ V. T. 114, N. 21.

21) $\int l(1+px)\frac{dx}{1+px^2}=\frac{1}{2\sqrt{p}}Arctg(\sqrt{p}).l(1+p)$ (VIII, 463*).

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22) $\int l(px+q)\frac{dx}{(1+x)^2}=\frac{1}{p-q}\left\{\frac{1}{2}(p+q)\,l(p+q)-q\,lq-p\,l2\right\}$ (VIII, 591*).

23) $\int l(1+px)\frac{1-x^2}{(1+x^2)^2}dx=\frac{1}{2}\frac{(1+p)^2}{1+p^2}l(1+p)-\frac{1}{2}\frac{p}{1+p^2}l2-\frac{\pi}{4}\frac{p^2}{1+p^2}$ (IV, 224).

24) $\int l(1+x^2)\frac{dx}{1+x^2}=\frac{1}{2}\pi\,l2-\sum_{0}^{\infty}\frac{(-1)^n}{(2n+1)^2}$ V. T. 231, N. 26.

25) $\int l(1+x^2)\frac{dx}{x(1+x^2)}=\frac{1}{2}\left\{\frac{1}{12}\pi^2-\frac{1}{2}(l2)^2\right\}$ V. T. 114, N. 1.

26) $\int l(1-x^2)\frac{dx}{1+x^2}=\frac{\pi}{4}l2+\sum_{0}^{\infty}\frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 114, N. 24 et T. 115, N. 20.

27) $\int l(\mathit{Cos}^2\lambda+x^2\,\mathit{Sin}^2\lambda)\frac{dx}{1-x^2}=-\lambda^2$ Winckler, Sitz. Ber. Wien. B. 43, 315.

28) $\int l(q^2+x^2)\frac{dx}{(1+px)^2}=\frac{2}{1+p}lq+\frac{1}{1+p^2q^2}\left\{2q\,\mathit{Arccot}\,q+\frac{1-pq^2}{1+p}l\frac{1+q^2}{q^2}-\frac{2}{p}l(1+p)\right\}$ (VIII, 592).

29) $\int l(1-x^4)\frac{dx}{1+x^2}=\frac{3\pi}{4}l2+2\sum_{0}^{\infty}\frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 114, N. 24, 26.

30) $\int l(1+x^p)\frac{dx}{x}=\frac{1}{12p}\pi^2$ V. T. 114, N. 1.

31) $\int l(1-x^p)\frac{dx}{x}=-\frac{1}{6p}\pi^2$ V. T. 114, N. 14.

32) $\int l(1+x+x^2)\frac{dx}{x}=\frac{1}{9}\pi^2$ V.T.113,N.1,2. 33) $\int l(1-x+x^2)\frac{dx}{x}=-\frac{1}{18}\pi^2$ V.T.113,N.3,4.

34) $\int l(1+2x\,\mathit{Cos}\,\lambda+x^2)\frac{dx}{x}=\frac{1}{6}\pi^2-\frac{1}{2}\lambda^2$ (VIII, 360*).

F. Alg. rat. fract.; Log. en num. de forme fract. TABLE 115. Lim. 0 et 1.

1) $\int l\frac{1+x}{2}\frac{dx}{1-x}=\frac{1}{2}(l2)^2-\frac{1}{12}\pi^2$ (VIII, 268).

2) $\int l\frac{1+p^2x^2}{1+p^2}\frac{dx}{1-x^2}=-(\mathit{Arctg}\,p)^2$ Winckler, Sitz. Ber. Wien. B. [illegible], 315.

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3) $\int l\frac{1+x}{x}\frac{dx}{1+x^2}=\frac{\pi}{8}l2+\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ (VIII, 534).

4) $\int l\frac{(1+x)^2}{x}\frac{dx}{1+x^2}=\frac{\pi}{4}l2+\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ (VIII, 534*).

5) $\int l\frac{1-x}{x}\frac{dx}{1+x^2}=\frac{\pi}{8}l2$ V. T. 108, N. 10 et T. 114, N. 17.

6) $\int l\frac{(1-x)^2}{x}\frac{dx}{1+x^2}=\frac{\pi}{4}l2+\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 108, N. 10 et T. 114, N. 17.

7) $\int l\frac{1+x^2}{x}\frac{dx}{1+x^2}=\frac{\pi}{2}l2$ V. T. 108, N. 10 et T. 114, N. 24.

8) $\int l\frac{1+x^2}{x^2}\frac{dx}{1+x^2}=\frac{\pi}{2}l2+\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 108, N. 10 et T. 114, N. 24.

9) $\int l\frac{1-x^2}{x}\frac{dx}{1+x^2}=\frac{\pi}{4}l2$ V. T. 108, N. 10 et T. 114, N. 26.

10) $\int l\frac{1-x^2}{x^2}\frac{dx}{1+x^2}=\frac{\pi}{4}l2+\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 108, N. 10 et T. 114, N. 26.

11) $\int l\frac{1-x^4}{x}\frac{dx}{1+x^2}=\frac{3\pi}{4}l2+\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 108, N. 10 et T. 114, N. 29.

12) $\int l\frac{1-x^4}{x^2}\frac{dx}{1+x^2}=\frac{3\pi}{4}l2$ V. T. 108, N. 10 et T. 114, N. 29.

13) $\int l\frac{1-x^4}{x^3}\frac{dx}{1+x^2}=\frac{3\pi}{4}l2+\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 108, N. 10 et T. 114; N. 29.

14) $\int l\frac{1-x^4}{x^4}\frac{dx}{1+x^2}=\frac{3\pi}{4}l2+2\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 108, N. 10 et T. 114, N. 29.

15) $\int l\frac{1+x}{1-x}\frac{dx}{x}=\frac{1}{4}\pi^2$ (VIII, 265).

16) $\int l\frac{px+q}{qx+p}\frac{dx}{(1+x)^2}=\frac{1}{p-q}\left[(p+q)l\frac{p+q}{2}-plp-qlq\right]$ V. T. 114, N. 22.

17) $\int l\frac{1+x}{1-x}\frac{dx}{1+x^2}=\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 114, N. 3, 17.

18) $\int l\frac{1+x^2}{1+x}\frac{dx}{1+x^2}=\frac{3\pi}{8}l2+\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 114, N. 3, 24.

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19) $\int l\frac{1+x^2}{1-x}\frac{dx}{1+x^2}=\frac{3\pi}{8}l2$ (VIII, 465).

20) $\int l\frac{1+x^2}{1-x^2}\frac{dx}{1+x^2}=\frac{\pi}{4}l2$ (VIII, 465).

21) $\int l\frac{(1+x)(1-x^2)}{1+x^2}\frac{dx}{1+x^2}=-\frac{\pi}{8}l2$ (VIII, 465).

22) $\int l\frac{1-x^2\,Cothp^2\lambda}{1+x^2\,Cothp^2\lambda}\frac{dx}{1-(1-x^2)\,Coshp^2\lambda}=\frac{2\lambda.l\,Sinhp\lambda}{Sinhp\lambda.Coshp\lambda}$ V. T. 318, N. 7.

23) $\int l\frac{1+2x\,Cos\lambda+x^2}{(1+x)^2}\frac{dx}{x}=-\frac{1}{2}\lambda^2$ (VIII, 584).

24) $\int l\frac{1+2x\,Cos\lambda+x^2}{(1+x)^2}(x^p+x^{-p})\frac{dx}{x}=\frac{2\pi}{p}\,Cosec\,p\pi.(Cos\,p\lambda-1)$ (VIII, 584).

25) $\int l\frac{(1-px)(1+px^2)}{(1-px^2)^2}\frac{dx}{1+px^2}=\frac{1}{2\sqrt{p}}Arctg(\sqrt{p}).l(1+p)$ (VIII, 465*).

26) $\int l\frac{(1-p^2x^2)(1+px^2)}{(1-px^2)^2}\frac{dx}{1+px^2}=\frac{1}{\sqrt{p}}Arctg(\sqrt{p}).l(1+p)$ (VIII, 465*).

27) $\int l\frac{(p-x)(p+x^2)}{(p-x^2)^2}\frac{dx}{p+x^2}=\frac{1}{2\sqrt{p}}Arccot(\sqrt{p}).l\frac{1+p}{p}$ V. T. 115, N. 25.

28) $\int l\frac{(p^2-x^2)(p+x^2)}{(p-x^2)^2}\frac{dx}{p+x^2}=\frac{1}{\sqrt{p}}Arccot(\sqrt{p}).l(1+p)$ V. T. 115, N. 26.

29) $\int l\frac{1+p\sqrt{1-x^2}}{1-p\sqrt{1-x^2}}\frac{dx}{1-x^2}=\pi\,Arcsin\,p$ (VIII, 582).

30) $\int l\frac{1+Cos\mu.\sqrt{1-x^2}}{1-Cos\mu.\sqrt{1-x^2}}\frac{dx}{x^2+Tg^2\lambda}=\pi\,Cot\,\lambda.l\left[\left\{Cos\frac{1}{2}(\lambda-\mu)\right\}.\left\{Cosec\frac{1}{2}(\lambda+\mu)\right\}\right]$

V. T. 318, N. 13.

31) $\int l\left\{\frac{x+\sqrt{1-x^2}}{x-\sqrt{1-x^2}}\right\}^2\frac{x\,dx}{1-x^2}=\frac{1}{2}\pi^2$ V. T. 315, N. 15.

32) $\int l\frac{\sqrt{1-p^2x^2}-x\sqrt{1-p^2}}{1-x}\frac{dx}{x}=\frac{1}{2}(Arcsin\,p)^2$ Winckler, Sitz. Ber. Wien. B. 43, 315.

33) $\int\sqrt{l\frac{1}{x}}\frac{dx}{1+x^2}=\frac{1}{2}\sqrt{\pi}.\sum_0^\infty\frac{(-1)^n}{\sqrt{2n+1}^3}$ (IV, 259*).

F. Alg. rat. fract.; Log. en num. à deux facteurs.	TABLE 116.	Lim. 0 et 1.

1) $\int (lx)^{2a} . l(1+x) \frac{dx}{x} = \frac{2^{2a+1}-1}{(2a+1)(2a+2)} \pi^{2a+2} B_{2a+1}$ (VIII, 592).

2) $\int (lx)^{2a} . l(1-x) \frac{dx}{x} = -\frac{2^{2a}}{(a+1)(2a+1)} \pi^{2a+2} B_{2a+1}$ (VIII, 592).

3) $\int (lx)^{a-1} . l(1+x) \frac{dx}{x} = 1^{a-1/1} \sum_{0}^{\infty} \frac{(-1)^{n+a-1}}{(1+n)^{a+1}}$ V. T. 110, N. 3.

4) $\int (lx)^{a-1} . l(1-x) \frac{dx}{x} = (-1)^{a} 1^{a-1/1} \sum_{0}^{\infty} \frac{1}{(n+1)^{a+1}}$ V. T. 110, N. 6.

5) $\int (lx)^{2a} . l(1-x^2) \frac{dx}{x} = -\frac{1}{(2a+1)(2a+2)} \pi^{2a+2} B_{2a+1}$ V. T. 116, N. 1, 2.

6) $\int (lx)^{a-1} . l(1-x^2) \frac{dx}{x} = \frac{(-1)^{a}}{2^{a}} 1^{a-1/1} \sum_{0}^{\infty} \frac{1}{(n+1)^{a+1}}$ V. T. 110, N. 3, 6.

7) $\int (lx)^{p} . l(1-qx^{r}) \frac{dx}{x} = \Gamma(p+1) \left(\frac{-1}{r}\right)^{p+1} \sum_{1}^{\infty} \frac{q^{n}}{n^{p+2}}$ V. T. 110, N. 8.

8) $\int (lx)^{r} . l(1-2px \operatorname{Cos}\lambda + p^{2}x^{2}) \frac{dx}{x} = (-1)^{r} 2\Gamma(r) \sum_{1}^{\infty} \frac{p^{n} \operatorname{Cos} n\lambda}{n^{r+1}}$ V. T. 118, N. 11.

F. Alg. irrat. ent.; Log. en num.	TABLE 117.	Lim. 0 et 1.

1) $\int lx . dx \sqrt{1-x^2} = -\frac{1}{4}\pi\left(\frac{1}{2} + l2\right)$ (VIII, 685).

2) $\int lx . x dx \sqrt{1-x^2} = \frac{1}{3}\left(l2 - \frac{4}{3}\right)$ (VIII, 685).

3) $\int lx . dx \sqrt{1-x^2}^{\,2a-1} = -\frac{1^{a/2}}{2^{a+2} 1^{a/1}} \pi \{A + Z'(a+1) + 2l2\}$ (IV, 227).

4) $\int lx . x^{2a} dx \sqrt{1-x^2} = -\frac{3^{a-1/2}}{2^{a+1/1}} \frac{\pi}{2} \left\{\frac{1}{2a+2} + l2 + \sum_{1}^{2a} \frac{(-1)^{n}}{n}\right\}$ (VIII, 685).

5) $\int lx . x^{2a-1} dx \sqrt{1-x^2} = -\frac{2^{a-1/2}}{1^{a+1/2}} \left\{\frac{1}{2a+1} - l2 + \sum_{1}^{2a-1} \frac{(-1)^{n-1}}{n}\right\}$ (VIII, 685).

6) $\int l(1+px^2) . dx \sqrt{1-x^2} = \frac{1}{2}\pi \left\{l\frac{1+\sqrt{1+p}}{2} + \frac{1}{2} \frac{1-\sqrt{1+p}}{1+\sqrt{1+p}}\right\}$ (VIII, 358).

7) $\int l(1+p-px^2) . dx \sqrt{1-x^2} = \frac{1}{2}\pi \left\{l\frac{1+\sqrt{1+p}}{2} - \frac{1}{2} \frac{1-\sqrt{1+p}}{1+\sqrt{1+p}}\right\}$ V. T. 309, N. 15.

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8) $\int l(1-p^2x^2).x\,dx\sqrt{1-p^2x^2} = \frac{1}{9p^2}\left[\{2-3l(1-p^2)\}\sqrt{1-p^2}^{\,3}-2\right]$ V. T. 324, N. 19.

9) $\int l(1-p^2x^2).dx\sqrt{(1-x^2)(1-p^2x^2)} = \frac{1}{9p^2}\left[\{(2+7p^2-3p^4)-\frac{3}{2}(1-p^2)l(1-p^2)\}\right.$
$\left.F'(p)+\{2(1+4p^2)+3(2-p^2)l(1-p^2)\}E'(p)\right]$ V. T. 324, N. 21.

Dans 8) et 9) on a $p^2<1$.

TABLE 118.

F. Alg. irrat. fract.; Log. en num. $(lx)^a$. — Lim. 0 et 1.

1) $\int lx\frac{x^a}{1-x}\frac{dx}{\sqrt{x}} = -\frac{1}{2}\pi^2+4\sum_1^a\frac{1}{(2n-1)^2}$

2) $\int lx\frac{1-x^{a+1}}{(1-x)^2}\frac{dx}{\sqrt{x}} = -\frac{1}{2}(a+1)\pi^2+4\sum_1^a\frac{a-n+1}{(2n-1)^2}$

(1 et 2) Oettinger, Gr. 39, 425.

3) $\int lx\frac{dx}{\sqrt{1-x^2}} = -\frac{1}{2}\pi l2$ (VIII, 547).

4) $\int lx\frac{x\,dx}{\sqrt{1-x^2}} = l2-1$ (VIII, 685).

5) $\int lx.x^{2a}\frac{dx}{\sqrt{1-x^2}} = -\frac{3^{a-1/2}}{2^{a/2}}\frac{\pi}{2}\left\{l2+\sum_1^{2a}\frac{(-1)^n}{n}\right\}$ (VIII, 684).

6) $\int lx.x^{2a-1}\frac{dx}{\sqrt{1-x^2}} = \frac{2^{a-1/2}}{1^{a/2}}\left\{l2+\sum_1^{2a-1}\frac{(-1)^n}{n}\right\}$ (VIII, 684).

7) $\int lx\frac{dx}{\sqrt[3]{1-x^3}} = -\frac{\pi}{3\sqrt{3}}\left(l3+\frac{\pi}{3\sqrt{3}}\right)$ (IV, 228).

8) $\int lx\frac{x\,dx}{\sqrt[3]{1-x^3}^{\,2}} = \frac{\pi}{3\sqrt{3}}\left(\frac{\pi}{3\sqrt{3}}-l3\right)$ (IV, 228).

9) $\int lx\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}} = -\frac{1}{2}lp.F'(p)-\frac{1}{4}\pi F'\{\sqrt{1-p^2}\}\ [p^2<1]$ V. T. 322, N. 8.

10) $\int lx\frac{1}{(1+p)^2-4px^2}\frac{dx}{\sqrt{1-x^2}} = \frac{\pi}{2(1+p)^2}l\frac{1+p}{2}\ [p^2<1], = \frac{\pi}{2(p^2-1)}l\frac{1+p}{2p}\ [p^2>1]$
V. T. 321, N. 3.

11) $\int lx\frac{1-p^2+2px^2}{(1-p)^2+4px^2}\frac{dx}{\sqrt{1-x^2}} = \frac{1}{4}\pi l\frac{1-p}{4}\ [p^2<1], = \frac{1}{4}\pi l\frac{p-1}{4p}\ [p^2>1]$
V. T. 321, N. 1, 2.

12) $\int lx\frac{x^{a-1}\,dx}{\sqrt[b]{1-x^b}^{\,b-c}} = -\sum_0^\infty\frac{(b-c)^{n/b}}{b^{n/b}}\frac{1}{(a+bn)^2}$ (IV, 228).

13) $\int (lx)^2 \frac{dx}{\sqrt{1-x^2}} = \frac{1}{2}\pi \left\{(l2)^2 + \frac{1}{12}\pi^2\right\}$ (IV, 229).

14) $\int (lx)^h \frac{x^{q-1}\,dx}{\sqrt[b]{1-x^b}^{\,b-c}} = (-1)^h 1^{h/1} \sum_0^\infty \frac{(b-c)^{n/b}}{b^{n/b}} \frac{1}{(q+bn)^{h+1}}$ (IV, 229).

15) $\int (lx)^3 \frac{x^a}{1-x} \frac{dx}{\sqrt{x}} = 16 \sum_a^\infty \frac{1}{(2n-1)^3}$ Oettinger, Gr. 39, 425.

F. Alg. irrat. fract.; Log. en num. $l(1-p^2x^2)$ $[p^2<1]$. TABLE 119. Lim. 0 et 1.

1) $\int l(1-p^2x^2) \frac{dx}{\sqrt{1-x^2}} = \pi\, l \frac{1+\sqrt{1-p^2}}{2}\ [p^2<1], = -\pi\, l2p\ [p^2>1]$ (VIII, 550*).

2) $\int l(1-p^2x^2) \frac{x^2\,dx}{\sqrt{1-x^2}} = \frac{1}{2}\pi \left\{ l\frac{1+\sqrt{1-p^2}}{2} - \frac{1}{2}\frac{1-\sqrt{1-p^2}}{1+\sqrt{1-p^2}} \right\}$ V. T. 309, N. 11.

3) $\int l(1-p^2x^2).dx\sqrt{\frac{1-p^2x^2}{1-x^2}} = (2-p^2)F'(p) - \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)$ (VIII, 549).

4) $\int l(1-p^2x^2).x^2dx\sqrt{\frac{1-p^2x^2}{1-x^2}} = \frac{1}{9p^2}\left[\left\{-(2-11p^2+6p^4) + \frac{3}{2}(1-p^2)\,l(1-p^2)\right\} F'(p) + \left\{2(1-5p^2) - \frac{3}{2}(1-2p^2)\,l(1-p^2)\right\} E'(p)\right]$ V. T. 324, N. 20.

5) $\int l(1-p^2x^2).dx\sqrt{\frac{(1-p^2x^2)^3}{1-x^2}} = \frac{1}{9}\left[\left\{2(10-10p^2+3p^4) - \frac{3}{2}(1-p^2)\,l(1-p^2)\right\} F'(p) - (2-p^2)\left\{10 - 3\,l(1-p^2)\right\} E'(p)\right]$ V. T. 324, N. 22.

6) $\int l(1-p^2x^2) \frac{x\,dx}{\sqrt{1-p^2x^2}} = \frac{1}{p^2}\left[\left\{2 - l(1-p^2)\right\}\sqrt{1-p^2} - 2\right]$ V. T. 323, N. 2.

7) $\int l(1-p^2x^2).dx\sqrt{\frac{1-x^2}{1-p^2x^2}} = \frac{1}{p^2}\left[\left\{(2-p^2) - \frac{1}{2}(1-p^2)\,l(1-p^2)\right\} F'(p) - \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)\right]$ (VIII, 549).

8) $\int l(1-p^2x^2).x^2dx\sqrt{\frac{1-x^2}{1-p^2x^2}} = \frac{1}{9p^4}\left[\left\{(16-16p^2+3p^4) + \frac{3}{2}(1-p^2)\,l(1-p^2)\right\} F'(p) + \left\{2(1-5p^2) - \frac{3}{2}(1-2p^2)\,l(1-p^2)\right\} E'(p)\right]$ V. T. 323, N. 4.

9) $\int l(1-p^2x^2).dx\sqrt{\frac{1-x^2}{(1-p^2x^2)^3}} = \frac{1}{p^2}\left[\left\{(2-p^2)+\frac{1}{2}l(1-p^2)\right\}F'(p)-\left\{2+\frac{1}{2}l(1-p^2)\right\}E'(p)\right]$ V. T. 323, N. 16.

10) $\int l(1-p^2x^2).dx\sqrt{\frac{(1-x^2)^3}{1-p^2x^2}} = \frac{1}{9p^4}\left[-\left\{2(8-17p^2+6p^4)+\frac{3}{2}(1+3p^2)(1-p^2)l(1-p^2)\right\}\right.$ $\left.F'(p)+\left\{-2(1+4p^2)+\frac{3}{2}(1+p^2)l(1-p^2)\right\}E'(p)\right]$ V. T. 323, N. 7.

11) $\int l(1-p^2x^2).x^2\,dx\sqrt{\frac{1-x^2}{(1-p^2x^2)^3}} = \frac{1}{p^4}l(1-p^2).\left[\frac{1}{2}(2-p^2)F'(p)-E'(p)\right]$ V. T. 323, N. 11.

12) $\int l(1-p^2x^2).x^4\,dx\sqrt{\frac{1-x^2}{(1-p^2x^2)^3}} = \frac{1}{9p^6}\left[\left\{-(16-16p^2+3p^4)+\frac{3}{2}(8-5p^2)l(1-p^2)\right\}\right.$ $\left.F'(p)+\left\{8(2-p^2)-\frac{3}{2}(8-p^2)l(1-p^2)\right\}E'(p)\right]$ V. T. 323, N. 14.

13) $\int l(1-p^2x^2).dx\sqrt{\frac{(1-x^2)^3}{(1-p^2x^2)^3}} = \frac{1}{p^4}\left[\{p^2(2-p^2)-(1-p^2)l(1-p^2)\}F'(p)+\right.$ $\left.+\left\{-2p^2+\frac{1}{2}(2-p^2)l(1-p^2)\right\}E'(p)\right]$ V. T. 323, N. 17.

14) $\int l(1-p^2x^2).x^2dx\sqrt{\frac{(1-x^2)^3}{(1-p^2x^2)^3}} = \frac{1}{9p^6}\left[\left\{(16-16p^2+3p^4)-\frac{3}{2}(8-3p^2)(1-p^2)l(1-p^2)\right\}\right.$ $\left.F'(p)+4(2-p^2)\{-2+3l(1-p^2)\}E'(p)\right]$ V. T. 323, N. 12.

15) $\int l(1-p^2x^2).dx\sqrt{\frac{(1-x^2)^5}{(1-p^2x^2)^3}} = \frac{1}{9p^6}\left[\left\{-(16-16p^2-15p^4+9p^6)+\frac{3}{2}(8-9p^2)(1-p^2)\right.\right.$ $\left.\left.l(1-p^2)\right\}F'(p)+\left\{2(8-4p^2-9p^4)-\frac{3}{2}(8-3p^2)(1-p^2)l(1-p^2)\right\}E'(p)\right]$ V. T. 323, N. 18.

16) $\int l(1-p^2x^2).dx\sqrt{\frac{1-x^2}{(1-p^2x^2)^5}} = \frac{1}{9p^2(1-p^2)}\left[\left\{(2-11p^2+6p^4)+\frac{3}{2}(1-p^2)l(1-p^2)\right\}\right.$ $\left.F'(p)-\left\{2(1-5p^2)+\frac{3}{2}(1-2p^2)l(1-p^2)\right\}E'(p)\right]$ V. T. 324, N. 12.

17) $\int l(1-p^2x^2).x^2dx\sqrt{\frac{1-x^2}{(1-p^2x^2)^5}} = \frac{1}{9p^4(1-p^2)}\left[\{-(16-16p^2+3p^4)+3(1-p^2)l(1-p^2)\}\right.$ $\left.F'(p)+(2-p^2)\left\{8+\frac{3}{2}l(1-p^2)\right\}E'(p)\right]$ V. T. 324, N. 3.

18) $\int l(1-p^2x^2).dx\sqrt{\frac{(1-x^2)^3}{(1-p^2x^2)^5}} = \frac{1}{9p^4}\Big[\Big\{2(8+p^2-3p^4)+\frac{3}{2}(2+p^2)\,l(1-p^2)\Big\}F'(p) - \{2(8+5p^2)+3(1+p^2)l(1-p^2)\}E'(p)\Big]$ V. T. 324, N. 13.

19) $\int l(1-p^2x^2).x^4dx\sqrt{\frac{1-x^2}{(1-p^2x^2)^5}} = \frac{1}{9p^6(1-p^2)}\Big[-\Big\{(16-16p^2+3p^4)+\frac{3}{2}(8-3p^2)(1-p^2)l(1-p^2)\Big\}F'(p)+\Big\{8(2-p^2)+\frac{3}{2}(8-7p^2)l(1-p^2)\Big\}E'(p)\Big]$ V. T. 324, N. 7.

20) $\int l(1-p^2x^2).x^2dx\sqrt{\frac{(1-x^2)^3}{(1-p^2x^2)^5}} = \frac{1}{9p^6}\Big[\Big\{(16-16p^2+3p^4)+\frac{3}{2}(8-p^2)\,l(1-p^2)\Big\}F'(p)-4(2-p^2)\{2-3\,l(1-p^2)\}E'(p)\Big]$ V. T. 324, N. 4.

21) $\int l(1-p^2x^2).dx\sqrt{\left(\frac{1-x^2}{1-p^2x^2}\right)^5} = \frac{1}{9p^6}\Big[-\Big\{(16-32p^2+p^4+6p^6)+\frac{3}{2}(8-3p^2-p^4)\,l(1-p^2)\Big\}F'(p)+\{2(8-12p^2-5p^4)-3(8-5p^2-p^4)l(1-p^2)\}E'(p)\Big]$

V. T. 324, N. 14.

22) $\int l(1-p^2x^2).x^6dx\sqrt{\frac{1-x^2}{(1-p^2x^2)^5}} = \frac{1}{9p^8(1-p^2)}\Big[\{-p^2(16-16p^2+3p^4)+12(2+p^2)(1-p^2)\,l(1-p^2)\}F'(p)+\Big\{8p^2(2-p^2)+\frac{3}{2}(16-16p^2+p^4)l(1-p^2)\Big\}E'(p)\Big]$

V. T. 324, N. 10.

23) $\int l(1-p^2x^2).x^4dx\sqrt{\frac{(1-x^2)^3}{(1-p^2x^2)^5}} = \frac{1}{3p^6}\,l(1-p^2).\Big[-\frac{1}{2}(16+16p^2-3p^4)F'(p) - 4(2-p^2)E'(p)\Big]$ V. T. 324, N. 8.

24) $\int l(1-p^2x^2).x^2dx\sqrt{\left(\frac{1-x^2}{1-p^2x^2}\right)^5} = \frac{1}{9p^8}[\{p^2(16-16p^2+3p^4)+6(4+6p^2-p^6)l(1-p^2)\}F'(p)-4(2-p^2)\{2p^2-3(1+p^2)l(1-p^2)\}E'(p)]$ V. T. 324, N. 5.

25) $\int l(1-p^2x^2).dx\sqrt{\frac{(1-p^2)^7}{(1-p^2x^2)^5}} = \frac{1}{9p^8}\Big[\Big\{-2p^2(16-8p^2+2p^4+3p^6)-\frac{3}{2}(16-p^4)(1+p^2)\,l(1-p^2)\Big\}F'(p)+\{2p^2(16-14p^2-5p^4)-3(8+4p^2-9p^4-p^6)l(1-p^2)\}E'(p)\Big]$

V. T. 324, N. 15.

8) $\int l(1+px^2)\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{1}{2}l\frac{2+2p}{\sqrt{p}}.F'(p)-\frac{1}{8}\pi F'\{\sqrt{1-p^2}\}$ V. T. 325, N. 4.

9) $\int l(1+x^2\,Cot^2\lambda)\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\pi F\{\sqrt{1-p^2},\lambda\}-2F'(p).\Upsilon\{\sqrt{1-p^2},\lambda\}-$

$-2F'(p).l\,Sin\,\lambda-\frac{1}{2}\pi F'\{\sqrt{1-p^2}\}-F'(p).lp-\{E'(p)-F'(p)\}[F\{\sqrt{1-p^2},\lambda\}]^2$ V. T. 325, N. 7.

10) $\int l(1-x^2)\frac{dx}{\sqrt{1-x^2}}=-\pi l2$ (VIII, 547).

11) $\int l(1-x^2)\frac{dx}{x\sqrt{1-x^2}}=-\frac{1}{4}\pi^2$ V. T. 120, N. 2.

12) $\int l(1-x^2)\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{1}{2}l\frac{1-p^2}{p^2}.F'(p)-\frac{1}{2}\pi F'\{\sqrt{1-p^2}\}$ V. T. 322, N. 9.

13) $\int l(1-p^2x^2\,Sin^2\lambda)\frac{dx}{\sqrt{(1-x^2)(1-p^2x)}}=E'(p).\{F(p,\lambda)\}^2-2F'(p).\Upsilon(p,\lambda)$ V. T. 325, N. 9.

14) $\int l(1-px^2)\frac{dx}{\sqrt{(1-p^2)(1-p^2x)}}=\frac{1}{2}l\frac{2-2p}{\sqrt{p}}.F'(p)-\frac{1}{8}\pi F'\{\sqrt{1-p^2}\}$ V. T. 325, N. 5.

15) $\int l(p^2-x^2)^2\frac{dx}{\sqrt{1-x^2}}=-2\pi l2\,[p^2<1],=2\pi l\frac{p+\sqrt{p^2-1}}{2}\,[p^2>1]$ (VIII, 550*).

16) $\int l(1-p^2x^4)\frac{dx}{\sqrt{1-x^2}}=\pi l\frac{1+\sqrt{1-p}+\sqrt{1+p}+\sqrt{1-p^2}}{4}$ V. T. 120, N. 6.

17) $\int l(1-p^2x^4)\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{1}{2}l\frac{4(1-p^2)}{p^2}.F'(p)-\frac{1}{4}\pi F'\{\sqrt{1-p^2}\}$ V. T. 325, N. 10.

F. Alg. irrat. fract.; Log. en num. d' autre fonct. ent. $[p^2<1]$. TABLE 121. Lim. 0 et 1.

1) $\int l(1+p^2+2px)\frac{dx}{\sqrt{1-x^2}}=\sum_0^\infty\frac{1}{2n+1}\,\frac{2^{n/2}}{3^{n/2}}\left(\frac{2p}{1+p^2}\right)^{2n+1}$ V. T. 308, N. 24.

2) $\int l(1-x^2+p^2x^2)\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{1}{4}l(1-p^2).F'(p)+\frac{1}{2}F'\{\sqrt{1-p^2}\}.$

$l\left[\frac{2\sqrt[4]{1-p^2}}{p^2}\{1-\sqrt{1-p^2}\}\right]$ Bronwin, Math. 2, 297.

3) $\int l(1+p-px^2)\frac{x^2dx}{\sqrt{1-x^2}}=\frac{1}{2}\pi\left\{l\frac{1+\sqrt{1+p}}{2}+\frac{1}{2}\,\frac{1-\sqrt{1+p}}{1+\sqrt{1+p}}\right\}$ V. T. 309, N. 15.

4) $\int l\{1-(Cos^2\lambda+p^2 Sin^2\lambda)x^2\}\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\pi F\{\sqrt{1-p^2},\lambda\}-$

$-2F'(p).\Gamma\{\sqrt{1-p^2},\lambda\}+\frac{1}{2}F'(p).l\frac{1-p^2}{p^2}-\frac{1}{2}\pi F'\{\sqrt{1-p^2}\}-$

$-\{E'(p)-F'(p)\}[l\{\sqrt{1-p^2},\lambda\}]^2$ V. T. 325, N. 8.

5) $\int l\{1-x^2+x^2\sqrt{1-p^2}\}\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{1}{2}l\frac{2\sqrt[4]{1-p^2}^3}{1+\sqrt{1-p^2}}.F'(p)$ V. T. 325, N. 6.

6) $\int l\{1+\sqrt{1-p^2x^2}\}\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{1}{2}lp.F'(p)+\frac{\pi}{4}F'\{\sqrt{1-p^2}\}$ V. T. 325, N. 3.

7) $\int l\{1-\sqrt{1-p^2x^2}\}\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{1}{2}lp.F'(p)-\frac{3}{4}\pi F'\{\sqrt{1-p^2}\}$

8) $\int l\{\sqrt{1+px}+\sqrt{1-px}\}\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{1}{4}l(4p).F'(p)+\frac{1}{8}\pi F'\{\sqrt{1-p^2}\}$

9) $\int l\{\sqrt{1-px}-\sqrt{1-px}\}\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{1}{4}l(4p).F'(p)+\frac{3}{8}\pi F'\{\sqrt{1-p^2}\}$

10) $\int l\{1+p^2-2p^2x^2+2p\sqrt{(1-x^2)(1-p^2x^2)}\}\frac{dx}{\sqrt{1-p^2x^2}}=\frac{1}{p}\left\{Arcsin\,p-\frac{1}{2}\pi\,l(1-p^2)\right\}$

11) $\int l\{1+p^2-2p^2x^2-2p\sqrt{(1-x^2)(1-p^2x^2)}\}\frac{dx}{\sqrt{1-p^2x^2}}=\frac{1}{p}\left\{Arcsin\,p+\frac{1}{2}\pi\,l(1-p^2)\right\}$

Sur 7) à 11), voyez Bronwin, Math. 2, 297.

F. Alg. irrat. fract.; Log. en num. de fonct. fract. TABLE 122. Lim. 0 et 1.

1) $\int l\left(\frac{1+x}{1-x}\right)\frac{dx}{x\sqrt{1-x^2}}=\frac{1}{2}\pi^2$ (VIII, 546).

2) $\int l\left(\frac{1+qx}{1-qx}\right)\frac{dx}{x\sqrt{1-x^2}}=\pi\,Arcsin\,q$ (VIII, 550*).

3) $\int l\left(\frac{1+x\,Cos\,\mu}{1-x\,Cos\,\mu}\right)\frac{1}{1+x\,Cos\,\lambda}\frac{dx}{\sqrt{1-x^2}}=\frac{2\pi}{Sin\,\lambda}l\frac{Cos\{\frac{1}{4}(\pi-2\lambda)\}}{Cos\{\frac{1}{2}(\lambda-\mu)\}}$ V. T. 318, N. 8.

4) $\int l\left(\frac{1+x\,Cos\,\mu}{1-x\,Cos\,\mu}\right)\frac{1}{1-x^2Cos^2\lambda}\frac{dx}{\sqrt{1-x^2}}=\frac{\pi}{Sin\,\lambda}l\frac{1+Sin\,\lambda}{Sin\,\lambda+Sin\,\mu}$ V. T. 318, N. 12.

5) $\int l\left(\frac{1+x\,Cos\,\mu}{1-x\,Cos\,\mu}\right)\frac{x}{1-x^2Cos^2\lambda}\frac{dx}{\sqrt{1-x^2}}=\frac{2\pi}{Sin\,2\lambda}l\frac{Cos\{\frac{1}{2}(\mu-\lambda)\}}{Sin\{\frac{1}{2}(\mu+\lambda)\}}$ V. T. 318, N. 5.

6) $\int l\left(\frac{1+x\,Coshp\lambda}{1-x\,Coshp\lambda}\right)\frac{x}{1-x^2\,Coshp^2\lambda}\frac{dx}{\sqrt{1-x^2}}=-\frac{\pi}{Sinhp\lambda\,.\,Coshp\lambda}\,l\,Sinhp\lambda$ V. T. 318, N. 11.

7) $\int l\left(\frac{1+x\,Coshp\mu}{1-x\,Coshp\mu}\right)\frac{x}{1-x^2\,Cos^2\lambda}\frac{dx}{\sqrt{1-x^2}}=\frac{2\pi}{Sin2\lambda}\,l\left[Cothp\left\{\frac{1}{2}Arccoshp\left(\frac{Coshp\mu}{Cos\lambda}\right)\right\}.Tanghp\left\{\frac{1}{2}Arccoshp\left(\frac{Tg\lambda}{Tanghp\mu}\right)\right\}\right]$ V. T. 318, N. 14.

8) $\int l\left(\frac{1+px}{1-px}\right)\frac{x}{1-qx^2}\frac{dx}{\sqrt{1-x^2}}=\frac{\pi}{\sqrt{q(1-q)}}\,l\frac{p\sqrt{q}+\{1-\sqrt{1-q}\}\{1-\sqrt{1-p^2}\}}{p\sqrt{q}-\{1-\sqrt{1-q}\}\{1-\sqrt{1-p^2}\}}$ (IV, 232).

9) $\int l\left(\frac{1+x}{1-x}\right)\frac{x}{1-Cos^2\lambda.Cos^2\mu-x^2Sin^2\mu}\frac{dx}{\sqrt{x^2-Cos^2\lambda}}=\frac{\pi}{Sin\lambda.Sin\mu}\,l\frac{Sin\mu+\sqrt{1-Cos^2\lambda.Cos^2\mu}}{Sin\mu.(1+Sin\lambda)}$ V. T. 322, N. 12.

10) $\int\left\{l\left(\frac{1+x}{1-x}\right)-2x\right\}\frac{dx}{x^3\sqrt{1-x^2}}=\frac{1}{4}\pi^2$ V. T. 315, N. 8.

11) $\int l\left(\frac{Cos^2\lambda+x^2\,Sin^2\lambda}{Cos^2\mu+x^2\,Sin^2\mu}\right)\frac{dx}{\sqrt{1-x^2}}=2\pi\,l\left(Cos\frac{1}{2}\lambda\,.\,Sec\frac{1}{2}\mu\right)$ (VIII, 291).

12) $\int l\left(\frac{1+qx^2}{1-qx^2}\right)\frac{dx}{\sqrt{1-x^2}}=\pi\,l\frac{1+\sqrt{1+q}}{1+\sqrt{1-q}}$ V. T. 120, N. 6.

13) $\int l\left(\frac{1-x\,Coshp\lambda.Coshp\mu.\sqrt{1-x^2\,Cothp^2\lambda.Tghp^2\mu}}{1+x\,Coshp\lambda.Coshp\mu.\sqrt{1-x^2\,Cothp^2\lambda.Tghp^2\mu}}\right)\frac{dx}{\sqrt{1-x^2}}=$

$=\pi\,l\frac{4\,Sinhp\lambda}{\{Sinhp\lambda+\sqrt{1-Coshp^2\lambda.Coshp^2\mu}\}(1+Sinhp\lambda)}$ V. T. 325, N. 2.

14) $\int l\left(\frac{1+\sqrt{(1-x^2)(Sin^2\lambda-x^2Sin^2\mu)}}{1-\sqrt{(1-x^2)(Sin^2\lambda-x^2Sin^2\mu)}}\right)\frac{dx}{\sqrt{1-x^2}}=\pi\,l\left[\frac{1}{2}\left\{Cos^2\frac{1}{2}\lambda+\sqrt{Cos^4\tfrac{1}{2}\lambda+Sin^2\tfrac{1}{2}\mu.Cos^2\tfrac{1}{2}\mu}\right\}\right]$ V. T. 325, N. 1.

15) $\int l\left(\frac{1+q\sqrt{1-p^2x^2}}{1-q\sqrt{1-p^2x^2}}\right)\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\pi\,F\{\sqrt{1-p^2},Arcsin\,q\}$ V. T. 325, N. 11.

F. Alg. rat. ent.; Log. en dén. lx. TABLE 123. Lim. 0 et 1.

1) $\int x^a\frac{dx}{lx}=\infty$ (IV, 233).

2) $\int(1-x)^p\frac{dx}{lx}=\sum_1^\infty(-1)^n\frac{p^{n|-1}}{1^{n|1}}\,l(1+n)\;[p\geqq 1]$ (VIII, 278).

$\int (x^p - x^q) \frac{dx}{lx} = l\frac{p+1}{q+1}$ (VIII, 346). 4) $\int (x^q - 1) x^{p-1} \frac{dx}{lx} = l\frac{p+q}{p}$ (VIII, 347).

$\int (x^p - x^q) x^{r-1} \frac{dx}{lx} = l\frac{p+r}{p+q}$ (IV, 233).

$\int (x^p - 1)(x^q - 1) \frac{dx}{lx} = l\frac{p+q+1}{(p+1)(q+1)}$ (VIII, 347).

$\int (x^p - x^q)(x^r - x^s) \frac{dx}{lx} = l\frac{(p+r+1)(q+s+1)}{(p+s+1)(q+r+1)}$ (IV, 233).

$\int (x^p - 1)(x^q - 1) x^{r-1} \frac{dx}{lx} = l\frac{(p+q+r)r}{(p+r)(q+r)}$ (VIII, 347).

$\int (x^p - 1)(x^q - 1)(x^r - 1) \frac{dx}{lx} = l\frac{(p+q+r+1)(p+1)(q+1)(r+1)}{(p+q+1)(p+r+1)(q+r+1)}$ (VIII, 347).

$\int (x^p - 1)(x^q - 1)(x^r - 1) x^{s-1} \frac{dx}{lx} = l\frac{(p+q+r+s)(p+s)(q+s)(r+s)}{(p+q+s)(p+r+s)(q+r+s)s}$ (VIII, 347).

$\int (x^p - 1)^a \frac{dx}{lx} = \sum_0^a (-1)^n \binom{a}{n} l\{(a-n)p+1\}$ (VIII, 347).

$\int (x^p - 1)^a x^{q-1} \frac{dx}{lx} = \sum_0^a (-1)^n \binom{a}{n} l\{q+(a-n)p\}$ (VIII, 347).

$\int (x^p - 1)^a (x^q - 1) x^{r-1} \frac{dx}{lx} = \sum_0^a (-1)^n \binom{a}{n} l\frac{r+q+(a-n)p}{r+(a-n)p}$ (VIII, 347).

$\int (x^p - 1)^a (x^q - 1)(x^r - 1) \frac{dx}{lx} = \sum_0^a (-1)^n \binom{a}{n} l\frac{\{q+r+(a-n)p+1\}\{(a-n)p+1\}}{\{q+(a-n)p+1\}\{r+(a-n)p+1\}}$

(VIII, 348).

$\int (x^p - 1)^a (x^q - 1)^b \frac{dx}{lx} = \sum_0^a (-1)^n \binom{a}{n} \sum_0^b (-1)^m \binom{b}{m} l\{(b-m)q+(a-n)p+1\}$

(VIII, 348).

$\int (x^p - 1)^a (x^q - 1)^b x^{r-1} \frac{dx}{lx} = \sum_0^a (-1)^n \binom{a}{n} \sum_0^b (-1)^m \binom{b}{m} l\{r+(b-m)q+(a-n)p\}$

(VIII, 348).

$\int (x^{p-1} - x^{q-1})(1+rx)^a \frac{dx}{lx} = l\frac{p}{q} + \sum_1^\infty \binom{a}{n} r^n l\frac{p+n}{q+n}$ (VIII, 491).

$\int (x^{p-1} - x^{q-1}) l(1+rx) \frac{dx}{lx} = l\frac{p}{q} + \sum_1^\infty \frac{r^n}{n} l\frac{p+n}{q+n}$ (VIII, 491).

1) $\int (x^p-1)^2 \frac{dx}{(lx)^2} = (2p+1)\,l(2p+1) - 2(p+1)\,l(p+1)$ (IV, 234).

2) $\int (x^p-1)(x^q-1)\frac{dx}{(lx)^2} = (p+q+1)\,l(p+q+1) - (q+1)\,l(q+1) - (p+1)\,l(p+1)$ (VIII, 348).

3) $\int (x^p-1)^2 x^{q-1} \frac{dx}{(lx)^2} = (2p+q)\,l(2p+q) - 2(p+q)\,l(p+q) + q\,lq$ (IV, 234).

4) $\int (1-x^p)(1-x^q)(1-x^r)\frac{dx}{(lx)^2} = (p+q+1)\,l(p+q+1) + (p+r+1)\,l(p+r+1) +$
$+ (q+r+1)\,l(q+r+1) - (p+1)\,l(p+1) - (q+1)\,l(q+1) - (r+1)\,l(r+1) -$
$- (p+q+r)\,l(p+q+r)$ (IV, 234).

5) $\int (1-x^p)^a \frac{dx}{(lx)^2} = \sum_1^a (-1)^n \binom{a}{n} (np+1)\,l(np+1)$ (VIII, 348).

6) $\int (1-x^p)^a x^{q-1}\frac{dx}{(lx)^2} = \sum_0^a (-1)^n \binom{a}{n} (q+np)\,l(q+np)$ (VIII, 348).

7) $\int (x^p-1)^a (x^q-1)^b \frac{dx}{(lx)^2} = \sum_0^a (-1)^n \binom{a}{n} \sum_0^b (-1)^m \binom{b}{m} \{(b-m)q+(a-n)p+1\}$
$l\{(b-m)q+(a-n)p+1\}$ (VIII, 348).

8) $\int (x^p-1)^a (x^q-1)^b x^{r-1}\frac{dx}{(lx)^2} = \sum_0^a (-1)^n \binom{a}{n} \sum_0^b (-1)^m \binom{b}{m} \{(b-m)q+(a-n)p+r\}$
$l\{(b-m)q+(a-n)p+r\}$ (VIII, 348).

9) $\int \{(q-r)x^{p-1} + (r-p)x^{q-1} + (p-q)x^{r-1}\}\frac{dx}{(lx)^2} = (q-r)p\,lp + (r-p)q\,lq + (p-q)r\,lr$
(VIII, 362).

10) $\int \left\{1-\left(\frac{1}{2}-\frac{1}{lx}\right)(1-x)\right\} x^{q-1}\frac{dx}{lx} = 1 + \left(q+\frac{1}{2}\right) l\frac{q}{q+1}$ V. T. 89, N. 23.

11) $\int \left\{1-x+\frac{x}{lx}\right\}\frac{dx}{lx} = l2-1$ V. T. 89, N. 25.

12) $\int \left\{(p-q)+\frac{1}{lx}(x^{q-1}-x^{p-1})\right\}\frac{dx}{lx} = p-q+q\,lq-p\,lp$ V. T. 89, N. 21.

13) $\int (1-x^p)^a \frac{dx}{(lx)^3} = \frac{1}{2}\sum_1^a (-1)^n \binom{a}{n} (pn+1)^2\,l(pn+1)$ (IV, 234).

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14) $\int (1-x^p)^a x^{q-1} \frac{dx}{(lx)^3} = \frac{1}{2} \sum_0^a (-1)^n \binom{a}{n} (pn+q)^2 l(pn+q)$ (IV, 235).

15) $\int (1-x^p)^a (1-x^q) \frac{dx}{(lx)^3} = -\frac{1}{2} \sum_0^a (-1)^n \binom{a}{n} (q+pn+1)^2 l(q+pn+1) + \frac{1}{2} \sum_1^a (-1)^n \binom{a}{n}$
$(pn+1)^2 l(pn+1)$ (IV, 235).

16) $\int \left\{ \frac{x^{p-1}}{(p-q)(p-r)(p-s)} + \frac{x^{q-1}}{(q-p)(q-r)(q-s)} + \frac{x^{r-1}}{(r-p)(r-q)(r-s)} + \frac{x^{s-1}}{(s-p)(s-q)(s-r)} \right\} \frac{dx}{(lx)^3} =$
$= \frac{1}{2} \left\{ \frac{p^2 lp}{(p-q)(p-r)(p-s)} + \frac{q^2 lq}{(q-p)(q-r)(q-s)} + \frac{r^2 lr}{(r-p)(r-q)(r-s)} + \frac{s^2 ls}{(s-p)(s-q)(s-r)} \right\}$
(IV, 234).

17) $\int x^{p-1} \frac{dx}{(lx)^q} = (-1)^q p^{q-1} \Gamma(1-q)$ $[q<1]$ (VIII, 439).

18) $\int x^{pq-1} dx \left(\frac{x^q-1}{lx} \right)^a = \frac{1}{1^{a-1/1}} \Delta^a . [(pq)^{a-1} l(pq)]$ (IV, 235).

19) $\int x^{pr-1} (x^r-1)^a \frac{dx}{(lx)^{b+1}} = \frac{r^b}{1^{b/1}} \Delta^a . [p^b lp]$ (IV, 235).

20) $\int (x^{q-1} - x^{r-1}) \frac{dx}{(lx)^{p+1}} = (-1)^{p+1} \Gamma(1-p) \frac{1}{p} (q^p - r^p)$ $[p<1]$ V. T. 90, N. 6.

21) $\int (x-1)^a x^{b-1} \frac{dx}{(lx)^{q+1}} = \frac{(-1)^q \pi}{Sin\, q\pi . \Gamma(q+1)} \Delta^a . b^q$ $[q<a]$, $= \frac{-1}{\Gamma(q+1)} \Delta^a . b^q lb$ [q entier]
V. T. 90, N. 8.

F. Alg. rat. ent.; Log. en dén. binôme. TABLE 125. Lim. 0 et 1.

1) $\int x^{p-1} \frac{dx}{q+lx} = e^{-pq} Ei(pq)$ V. T. 91, N. 4.

2) $\int x^{p-1} \frac{dx}{q-lx} = -e^{pq} Ei(-pq)$ V. T. 91, N. 1.

3) $\int x^{p-1} \frac{dx}{q^2+(lx)^2} = \frac{1}{q} \left\{ Ci(pq) . Sin\, pq - Si(pq) . Cos\, pq + \frac{1}{2}\pi\, Cos\, pq \right\}$ V. T. 91, N. 7.

4) $\int x^{p-1} lx \frac{dx}{q^2+(lx)^2} = Ci(pq) . Cos\, pq + Si(pq) . Sin\, pq - \frac{1}{2}\pi\, Sin\, pq$ V. T. 91, N. 8.

5) $\int x^{p-1} \frac{dx}{q^2-(lx)^2} = \frac{1}{2q} \{ e^{-pq} Ei(pq) - e^{pq} Ei(-pq) \}$ V. T. 91, N. 14.

6) $\int x^{p-1}\, lx \frac{dx}{q^2-(lx)^2} = -\frac{1}{2}\{e^{-pq}Ei(pq)+e^{pq}Ei(-pq)\}$ V. T. 91, N. 15.

7) $\int x^{p-1} \frac{dx}{q^4-(lx)^4} = \frac{1}{4q^3}\{e^{-pq}Ei(pq)-e^{pq}Ei(-pq)+2\,Ci(pq).Sin\,pq-2\,Si(pq).Cos\,pq+$
$+\pi\, Cos\,pq\}$ V. T. 91, N. 18.

8) $\int x^{p-1}\, lx \frac{dx}{q^4-(lx)^4} = \frac{1}{4q^2}\{-e^{pq}Ei(-pq)-e^{-pq}Ei(pq)+2\,Ci(pq).Cos\,pq+2\,Si(pq).Sin\,pq-$
$-\pi\, Sin\,pq\}$ V. T. 91, N. 19.

9) $\int x^{p-1}(lx)^2 \frac{dx}{q^4-(lx)^4} = \frac{1}{4q}\{e^{-pq}Ei(pq)-e^{pq}Ei(-pq)-2\,Ci(pq).Sin\,pq+2\,Si(pq).Cos\,pq-$
$-\pi\, Cos\,pq\}$ V. T. 91, N. 20.

10) $\int x^{p-1}(lx)^3 \frac{dx}{q^4-(lx)^4} = \frac{1}{4}\{-e^{-pq}Ei(pq)-e^{pq}Ei(-pq)-2\,Ci(pq).Cos\,pq-2\,Si(pq).Sin\,pq+$
$+\pi\, Sin\,pq\}$ V. T. 91, N. 21.

11) $\int x^{p-1} \frac{dx}{(q+lx)^2} = -\frac{1}{q}\{1-pq\,e^{-pq}Ei(pq)\}$ V. T. 92, N. 4.

12) $\int x^{p-1}\, lx \frac{dx}{(q+lx)^2} = 1+(1-pq)e^{-pq}Ei(pq)$ V. T. 125, N. 1, 11.

13) $\int x^{p-1} \frac{dx}{(q-lx)^2} = \frac{1}{q}\{1+pq\,e^{pq}Ei(-pq)\}$ V. T. 92, N. 1.

14) $\int x^{p-1}\, lx \frac{dx}{(q-lx)^2} = 1+(pq+1)e^{pq}Ei(-pq)$ V. T. 125, N. 2, 13.

15) $\int x^{p-1} \frac{dx}{\{q^2+(lx)^2\}^2} = \frac{1}{2q^3}\left\{Ci(pq).Sin\,pq-Si(pq).Cos\,pq+\frac{1}{2}\pi\, Cos\,pq\right\}+$
$+\frac{p}{2q^2}\left\{Ci(pq).Cos\,pq+Si(pq).Sin\,pq-\frac{1}{2}\pi\, Sin\,pq\right\}$ V. T. 92, N. 6.

16) $\int x^{p-1}\, lx \frac{dx}{\{q^2+(lx)^2\}^2} = \frac{p}{2q}\left\{Ci(pq).Sin\,pq-Si(pq).Cos\,pq+\frac{1}{2}\pi\, Cos\,pq\right\}-\frac{1}{2q^2}$ V. T. 92, N. 7.

17) $\int x^{p-1}(lx)^2 \frac{dx}{\{q^2+(lx)^2\}^2} = \frac{1}{2q}\left\{Ci(pq).Sin\,pq-Si(pq).Cos\,pq+\frac{1}{2}\pi\, Cos\,pq\right\}-$
$-\frac{1}{2}p\left\{Ci(pq).Cos\,pq+Si(pq).Sin\,pq-\frac{1}{2}\pi\, Sin\,pq\right\}$ V. T. 125, N. 3, 15.

18) $\int x^{p-1} \frac{dx}{\{q^2-(lx)^2\}^2} = \frac{1}{4q^3}\{(pq-1)e^{pq}Ei(-pq)+(1+pq)e^{-pq}Ei(pq)\}$ V. T. 92, N. 8.

F. Alg. rat. ent.; Log. en dén. binôme.	TABLE 125, suite.	Lim. 0 et 1.

19) $\int x^{p-1}\, lx \frac{dx}{\{q^2-(lx)^2\}^2} = \frac{1}{4q^2}\left\{pq\left\{e^{pq}\, Ei(-pq) - e^{-pq}\, Ei(pq)\right\} - 1\right\}$ V. T. 92, N. 9.

20) $\int x^{p-1}(lx)^2 \frac{dx}{\{q^2-(lx)^2\}^2} = \frac{1}{4q^3}\left\{(pq+1)e^{pq}\, Ei(-pq) + (pq-1)e^{-pq}\, Ei(pq)\right\}$ V. T. 125, N. 5, 18.

21) $\int x^{p-1} \frac{dx}{(q+lx)^a} = \frac{p^{a-1}}{1^{a-1/1}} e^{-pq}\, Ei(pq) - \frac{1}{1^{a-1/1}\, q^{a-1}} \sum_1^{a-1} 1^{a-n-1/1} (pq)^{n-1}$ V. T. 92, N. 5.

22) $\int x^{p-1} \frac{dx}{(q-lx)^a} = (-1)^a \frac{p^{a-1}}{1^{a-1/1}} e^{pq}\, Ei(-pq) + \frac{1}{1^{a-1/1}\, q^{a-1}} \sum_1^{a-1} 1^{a-n-1/1} (-pq)^{n-1}$
V. T. 92, N. 2.

F. Alg. rat. fract. à dén. monôme; Log. en dén. monôme.	TABLE 126.	Lim. 0 et 1.

1) $\int\left\{1 - \frac{1}{lx} + \frac{1}{x\, lx}\right\}\frac{dx}{lx} = 1$ V. T. 89, N. 20. 2) $\int\left\{\frac{x^q-1}{x(lx)^2} - \frac{q}{lx}\right\} dx = q\, lq - q$ (IV, 237).

3) $\int\left\{\frac{x^q-1}{x(lx)^3} - \frac{q}{x(lx)^2} - \frac{q^2}{2\, lx}\right\} dx = \frac{1}{2} q^2\, lq - \frac{3}{4} q^2$ (IV, 237).

4) $\int\left\{\frac{x^q-1}{x(lx)^4} - \frac{q}{x(lx)^3} - \frac{q^2}{2x(lx)^2} - \frac{q^3}{6\, lx}\right\} dx = \frac{1}{6} q^3\, lq - \frac{11}{36} q^3$ (IV, 237).

5) $\int\left\{x - \left(\frac{1}{1-lx}\right)^q\right\}\frac{dx}{x\, lx} = -Z'(q)$ V. T. 80, N. 7.

6) $\int\left\{x^p - \frac{1}{1+q^2(lx)^2}\right\}\frac{dx}{x\, lx} = A + l\frac{p}{q}$ V. T. 92, N. 11.

7) $\int\left\{x - \frac{1}{1-lx}\right\}\frac{dx}{x\, lx} = A$ V. T. 92, N. 10.

8) $\int\left\{x^q - \frac{1}{1-p\, lx}\right\}\frac{dx}{x\, lx} = l\frac{q}{p} + A$ V. T. 92, N. 10.

9) $\int\left\{x - \frac{1}{(1-lx)^p}\right\}\frac{dx}{x\, lx} = -Z'(p)$ V. T. 92, N. 15.

10) $\int\left\{\frac{x-1}{lx} - \frac{1}{1-lx}\right\}\frac{dx}{x\, lx} = A - 1$ V. T. 92, N. 16.

11) $\int\frac{l(1-x^q)}{1+(lx)^2}\frac{dx}{x} = \pi\left\{l\Gamma\left(\frac{q}{2\pi}+1\right) - \frac{1}{2} lq + \frac{q}{2\pi}\left(l\frac{q}{2\pi} - 1\right)\right\}$ V. T. 354, N. 6.

12) $\int\frac{x\, lx + 1 - x}{x(lx)^2}\, l(1+x)\, dx = l\frac{4}{\pi}$ V. T. 127, N. 3.

1) $\int \frac{1}{1+x} \frac{dx}{lx} = -\infty =$ 2) $\int \frac{1}{1-x} \frac{dx}{lx}$ (VIII, 264).

3) $\int \frac{1-x}{1+x} \frac{dx}{lx} = l\frac{2}{\pi}$ (IV, 238). 4) $\int \frac{1-x^{p-1}}{1+x} \frac{dx}{lx} = l\Gamma\left(\frac{q}{2}\right) - l\Gamma\left(\frac{q+1}{2}\right) - \frac{1}{2} l\pi$ (IV, 238).

5) $\int \frac{x^{p-1} - x^{q-1}}{1+x} \frac{dx}{lx} = l \frac{\Gamma\left(\frac{q}{2}\right)\Gamma\left(\frac{p+1}{2}\right)}{\Gamma\left(\frac{p}{2}\right)\Gamma\left(\frac{q+1}{2}\right)}$ (IV, 238).

6) $\int \frac{1-x^p}{1+x} \frac{x^q\, dx}{lx} = l \frac{\Gamma\left(\frac{1}{2}q+1\right)\Gamma\left(\frac{p+q+1}{2}\right)}{\Gamma\left(\frac{q+1}{2}\right)\Gamma\left(\frac{p+q}{2}+1\right)}$ (IV, 238).

7) $\int \frac{x^{p-1} - x^{q-1}}{1+x} \frac{1+x^{2a+1}}{lx} dx = l \frac{\left(\frac{p}{2}\right)^{a+1/1}\left(\frac{q+1}{2}\right)^{a/1}}{\left(\frac{p+1}{2}\right)^{a/1}\left(\frac{q}{2}\right)^{a+1/1}}$ (IV, 238).

8) $\int \frac{1-x^p}{1-x} \frac{1-x^q}{lx} dx = l \frac{\Gamma(p+1)\Gamma(q+1)}{\Gamma(p+q+1)}$ (VIII, 349).

9) $\int \frac{1-x^p}{1-x} \frac{1-x^q}{lx} x^{r-1} dx = l \frac{\Gamma(p+r)\Gamma(q+r)}{\Gamma(p+q+r)\Gamma(r)}$ (VIII, 349).

10) $\int \frac{(1-x^p)(1-x^q)}{1-x} \frac{1-x^r}{lx} dx = l \frac{\Gamma(p+1)\Gamma(q+1)\Gamma(r+1)\Gamma(p+q+r+1)}{\Gamma(p+q+1)\Gamma(p+r+1)\Gamma(q+r+1)}$ (VIII, 349).

11) $\int \frac{(1-x^p)(1-x^q)}{1-x} \frac{1-x^r}{lx} x^{s-1} dx = l \frac{\Gamma(p+s)\Gamma(q+s)\Gamma(r+s)\Gamma(p+q+r+s)}{\Gamma(p+q+s)\Gamma(p+r+s)\Gamma(q+r+s)\Gamma(s)}$ (IV, 239).

12) $\int \frac{(1-x^p)^a}{1-x} \frac{dx}{lx} = \sum_0^a (-1)^{n-1} l\Gamma\{(a-n)p+1\}$ (VIII, 349).

13) $\int \frac{(1-x^p)^a}{1-x} \frac{x^{q-1}\, dx}{lx} = \sum_0^a (-1)^{n-1} l\Gamma\{(a-n)p+q\}$ (VIII, 349).

14) $\int \left\{\frac{1}{1+x} - \frac{1}{2}x\right\} \frac{dx}{lx} = -\frac{1}{2} l\pi$ V. T. 94, N. 6. 15) $\int \left\{\frac{1}{lx} + \frac{1}{1-x}\right\} dx = \mathrm{A}$ (IV, 238).

16) $\int \left\{\frac{1}{lx} + \frac{x^{q-1}}{1-x}\right\} dx = -Z'(q)$ (VIII, 552).

17) $\int \left\{\frac{x^{p-1}}{lx} + \frac{x^{q-1}}{1-x}\right\} dx = lp - Z'(q)$ V. T. 123, N. 3 et T. 127, N. 16.

18) $\int \left\{ \frac{1-x^{q-1}}{1-x} + 1 - q \right\} \frac{dx}{lx} = l\Gamma(q)$ (VIII, 552).

19) $\int \left\{ \frac{x^p - x^{p+q}}{1-x} - q \right\} \frac{dx}{lx} = l \frac{\Gamma(p+q+1)}{\Gamma(p+1)}$ (IV, 239).

20) $\int \left\{ \frac{1}{lx} + \frac{1}{1-x} - \frac{1}{2} \right\} \frac{dx}{lx} = \frac{1}{2} l 2\pi - 1 =$ 21) $\int \left\{ \frac{1}{lx} + \frac{1}{2} \frac{1+x}{1-x} \right\} \frac{dx}{lx}$ V. T. 94, N. 29, 30.

22) $\int \left\{ \frac{1}{lx} + \frac{1}{2} \frac{1+x}{1-x} - lx \right\} \frac{dx}{lx} = \frac{1}{2} l 2\pi =$ 23) $\int \left\{ \frac{1}{lx} + \frac{1}{2} x + \frac{x}{1-x} \right\} \frac{dx}{x\,lx}$ V. T. 94, N. 31, 32.

24) $\int \left\{ p + \frac{x^{p-1}}{lx} - \frac{1}{2} x^{p-1} - \frac{1}{1-x} \right\} \frac{dx}{lx} = -\left(p + \frac{1}{2}\right) lp + p - \frac{1}{2} l 2\pi$ V. T. 94, N. 28.

25) $\int \left\{ p - 1 - \frac{1}{1-x} + \left(\frac{1}{2} - \frac{1}{lx}\right) x^{p-1} \right\} \frac{dx}{lx} = \left(\frac{1}{2} - p\right) lp + p - \frac{1}{2} l 2\pi$ V. T. 94, N. 26.

F. Alg. rat. fract. à autre dén. bin.; Log. en dén. monôme. TABLE 128. Lim. 0 et 1.

1) $\int \frac{x}{1-x^2} \frac{dx}{lx} = -\infty$ (VIII, 264).

2) $\int \frac{(1-x)^2}{1+x^2} \frac{dx}{lx} = l \frac{\pi}{4}$ V. T. 130, N. 7.

3) $\int \frac{1-x^2}{1+x^4} \frac{dx}{lx} = l\, Cot \frac{3\pi}{8}$ (IV, 240).

4) $\int \frac{x^{p-1} - x^{q-1}}{1+x^2} \frac{dx}{lx} = l \frac{\Gamma\left(\frac{p+2}{4}\right) \Gamma\left(\frac{q}{4}\right)}{\Gamma\left(\frac{p}{4}\right) \Gamma\left(\frac{q+2}{4}\right)}$ Lindmann, Gr. 35, 475.

5) $\int \frac{x^{p+q-1} - x^{p-q-1}}{1+x^{2p}} \frac{dx}{lx} = l\, Tg \left(\frac{p+q}{4p} \pi\right)$ (VIII, 350).

6) $\int \frac{1-x^{2p-2q}}{1+x^{2p}} \frac{x^{q-1}\, dx}{lx} = l\, Tg \frac{q\pi}{4p}$ (IV, 240).

7) $\int \frac{x^{p-1} - x^{q-1}}{1+x^{2(2a+1)}} \frac{1+x^2}{lx} dx = l \frac{\Gamma\left\{\frac{p+4a+4}{4(2a+1)}\right\} \Gamma\left\{\frac{q+2}{4(2a+1)}\right\} \Gamma\left\{\frac{p+4a+2}{4(2a+1)}\right\} \Gamma\left\{\frac{q}{4(2a+1)}\right\}}{\Gamma\left\{\frac{q+4a+4}{4(2a+1)}\right\} \Gamma\left\{\frac{p+2}{4(2a+1)}\right\} \Gamma\left\{\frac{q+4a+2}{4(2a+1)}\right\} \Gamma\left\{\frac{p}{4(2a+1)}\right\}}$

Lindmann, Gr. 35, 475.

8) $\int \frac{x^{p+q-1} + x^{p-q-1} - 2x^{p-1}}{1-x^{2p}} \frac{dx}{lx} = l\, Cos \frac{q\pi}{2p}$ (VIII, 350).

9) $\int \frac{(1-x^{p-q})^2}{1-x^{2p}} \; \frac{x^{q-1}\,dx}{lx} = l\,Sin\,\frac{q\pi}{2p}$ (IV, 240).

10) $\int \frac{(1-x^q)^2}{1-x^p} \; \frac{x^{p-q-1}\,dx}{lx} = -l\left(\frac{p}{q\pi}\,Sin\,\frac{q\pi}{p}\right)$ $[p>q]$ (IV, 240).

11) $\int \frac{x^{p-1}-x^{q-1}}{1-x^{2a}} \; \frac{1-x^2}{lx}\,dx = l\,\frac{\Gamma\left(\frac{p+2}{2a}\right)\Gamma\left(\frac{q}{2a}\right)}{\Gamma\left(\frac{p}{2a}\right)\Gamma\left(\frac{q+2}{2a}\right)}$ Lindmann, Gr. 35, 475.

12) $\int \frac{1-x^p}{1-x^2} \; \frac{1-x^{p+1}}{lx}\,dx = -p\,l2$ $[p>-1]$ (VIII, 349).

13) $\int \left\{\frac{2-x}{2\,lx} + \frac{1}{1-x^2} - \frac{1-x}{2}\right\}\frac{dx}{lx} = 0$ V. T. 94, N. 22.

14) $\int \left\{\frac{1}{1-x^2} + \frac{1}{2\,lx} - \frac{1}{2}\right\}\frac{dx}{lx} = \frac{1}{2}(l2-1)$ V. T. 94, N. 25.

15) $\int \left\{q - \frac{1}{2} + \frac{(1-x)(1+q\,lx)+x\,lx}{(1-x)^2}\,x^{q-1}\right\}\frac{dx}{lx} = \frac{1}{2} - q - l\Gamma(q) + \frac{1}{2}\,l2\pi$ (IV, 242).

F. Alg. rat. fract. à dén. binôme; Log. en dén. binôme. TABLE 129. Lim. 0 et 1.

1) $\int \frac{lx}{4\pi^2+(lx)^2} \; \frac{dx}{1-x} = \frac{1}{4} - \frac{1}{2}\,A$ V. T. 97, N. 14.

2) $\int \frac{lx}{q^2+(lx)^2} \; \frac{dx}{1-x} = \frac{1}{2}\left\{\frac{\pi}{q} + l\,\frac{2\pi}{q} + Z'\left(\frac{q}{2\pi}\right)\right\}$ V. T. 97, N. 20.

3) $\int \frac{lx}{q^2-(lx)^2} \; \frac{dx}{1-x} = \frac{\pi^2}{q^2}\sum_0^\infty \frac{(-1)^{n-1}}{n+1}\,B_{2n+1}\left(\frac{2\pi}{q}\right)^{2n}$ V. T. 97, N. 21.

4) $\int \frac{lx}{\{q^2+(lx)^2\}^2} \; \frac{dx}{1-x} = -\frac{\pi^2}{q^4}\sum_0^\infty B_{2n+1}\left(\frac{2\pi}{q}\right)^{2n}$ V. T. 97, N. 22.

5) $\int \frac{lx}{\{q^2-(lx)^2\}^2} \; \frac{dx}{1-x} = \frac{\pi^2}{q^4}\sum_0^\infty (-1)^{n+1}\,B_{2n+1}\left(\frac{2\pi}{q}\right)^{2n}$ V. T. 97, N. 23.

6) $\int \frac{1}{\pi^2+(lx)^2} \; \frac{dx}{1+x^2} = \frac{4-\pi}{4\pi}$ V. T. 97, N. 1.

7) $\int \frac{1}{\pi^2+4(lx)^2} \; \frac{dx}{1+x^2} = \frac{1}{4\pi}\,l2$ V. T. 97, N. 2.

8) $\int \frac{1}{\pi^2+16(lx)^2}\,\frac{dx}{1+x^2} = \frac{1}{8\pi\sqrt{2}}\left\{\pi + l\frac{\sqrt{2}-1}{\sqrt{2}+1}\right\}$ V. T. 97, N. 3.

9) $\int \frac{1}{q^2+(lx)^2}\,\frac{dx}{1+x^2} = \frac{1}{4q}\left\{Z'\left(\frac{2q+3\pi}{4\pi}\right) - Z'\left(\frac{2q+\pi}{4\pi}\right)\right\}$ V. T. 97, N. 4.

10) $\int \frac{lx}{\pi^2+(lx)^2}\,\frac{dx}{1-x^2} = \frac{1}{2}\left(\frac{1}{2} - l2\right)$ V. T. 97, N. 7.

11) $\int \frac{lx}{\pi^2+4(lx)^2}\,\frac{dx}{1-x^2} = \frac{2-\pi}{16}$ V. T. 97, N. 8.

12) $\int \frac{lx}{\pi^2+16(lx)^2}\,\frac{dx}{1-x^2} = -\frac{\pi}{32\sqrt{2}} + \frac{1}{16} + \frac{1}{32\sqrt{2}}\, l\frac{\sqrt{2}-1}{\sqrt{2}+1}$ V. T. 97, N. 9.

13) $\int \frac{lx}{\pi^2+(lx)^2}\,\frac{x\,dx}{1-x^2} = \frac{1}{4} - \frac{1}{2}A$ V. T. 97, N. 14.

14) $\int \frac{lx}{q^2+(lx)^2}\,\frac{x\,dx}{1-x^2} = \frac{1}{2}\left\{\frac{\pi}{2q} + l\frac{\pi}{q} + Z'\left(\frac{q}{\pi}\right)\right\}$ V. T. 97, N. 20.

15) $\int \frac{lx}{q^2-(lx)^2}\,\frac{x\,dx}{1-x^2} = \frac{\pi^2}{4q^2}\sum_0^\infty \frac{(-1)^{n-1}}{n+1} B_{2n+1}\left(\frac{\pi}{q}\right)^{2n}$ V. T. 97, N. 21.

16) $\int \frac{lx}{\{q^2+(lx)^2\}^2}\,\frac{x\,dx}{1-x^2} = -\frac{\pi^2}{4q^4}\sum_0^\infty B_{2n+1}\left(\frac{\pi}{q}\right)^{2n}$ V. T. 97, N. 22.

17) $\int \frac{lx}{\{q^2-(lx)^2\}^2}\,\frac{x\,dx}{1-x^2} = \frac{\pi^2}{4q^4}\sum_0^\infty (-1)^{n-1} B_{2n+1}\left(\frac{\pi}{q}\right)^{2n}$ V. T. 97, N. 23.

F. Alg. rat. fract. à dén. trin. et composé; Log. en dén. monôme. TABLE 130. Lim. 0 et 1.

1) $\int \frac{1}{1+x^2+2x\,Cos\,\lambda}\,\frac{dx}{(lx)^{1-q}} = Cosec\,\lambda\,.\,\Gamma(q)\sum_1^\infty (-1)^{n-1} n^{-q}\,Sin\,n\lambda$ (VIII, 489).

2) $\int \frac{x^q - x^p}{1+x^2+2x\,Cos\frac{a\pi}{b}}\,\frac{dx}{lx} = Cosec\frac{a\pi}{b}\,.\sum_1^{b-1}(-1)^n Sin\frac{na\pi}{b}\,.\,l\frac{\Gamma\left(\frac{p+b+n}{2b}\right)\Gamma\left(\frac{q+n}{2b}\right)}{\Gamma\left(\frac{q+b+n}{2b}\right)\Gamma\left(\frac{p+n}{2b}\right)}\left[\begin{matrix}a+b\\ \text{impair}\end{matrix}\right],=$

$= Cosec\frac{a\pi}{b}\,.\sum^{\frac{1}{2}(b-1)}(-1)^n\,Sin\frac{na\pi}{b}\,.\,l\frac{\Gamma\left(\frac{p+b-n}{b}\right)\Gamma\left(\frac{q+n}{b}\right)}{\Gamma\left(\frac{q+b-n}{b}\right)\Gamma\left(\frac{p+n}{b}\right)}\left[\begin{matrix}a+b\\ \text{pair}\end{matrix}\right]$ (IV, 242).

3) $$\int \frac{(1-x)^2}{1+x^2+2x\,Cos\frac{a\pi}{b}}\frac{dx}{lx} = Cosec\frac{a\pi}{b}.\sum_1^{b-1}(-1)^n Sin\frac{na\pi}{b}.\,l\frac{\left\{\Gamma\left(\frac{b+n+1}{2b}\right)\right\}^2\Gamma\left(\frac{n+2}{2b}\right)\Gamma\left(\frac{n}{2b}\right)}{\left\{\Gamma\left(\frac{n+1}{2b}\right)\right\}^2\Gamma\left(\frac{b+n}{2b}\right)\Gamma\left(\frac{b+n+2}{2b}\right)}\begin{bmatrix}a+b\\ \text{impair}\end{bmatrix},=$$

$$= Cosec\frac{a\pi}{b}.\sum_1^{\frac{1}{2}(b-1)}(-1)^n Sin\frac{na\pi}{b}.\,l\frac{\left\{\Gamma\left(\frac{b-n+1}{b}\right)\right\}^2\Gamma\left(\frac{n+2}{b}\right)\Gamma\left(\frac{n}{b}\right)}{\left\{\Gamma\left(\frac{n+1}{b}\right)\right\}^2\Gamma\left(\frac{b-n}{b}\right)\Gamma\left(\frac{b-n+2}{b}\right)}\begin{bmatrix}a+b\\ \text{pair}\end{bmatrix}$$ (IV, 243).

4) $$\int\left\{Tg\frac{a\pi}{2b} - \frac{2x^q\,Sin\frac{a\pi}{b}}{1+x^2+2x\,Cos\frac{a\pi}{b}}\right\}\frac{dx}{lx} = -Tg\frac{a\pi}{2b}.\,l(2b)+2\sum_1^{b-1}(-1)^n Sin\frac{na\pi}{b}.\,l\frac{\Gamma\left(\frac{q+b+n}{2b}\right)}{\Gamma\left(\frac{q+n}{2b}\right)}\begin{bmatrix}a+b\\ \text{impair}\end{bmatrix},=$$

$$= -Tg\frac{a\pi}{2b}.\,lb+2\sum_1^{\frac{1}{2}(b-1)}(-1)^n Sin\frac{na\pi}{b}.\,l\frac{\Gamma\left(\frac{q+b-n}{b}\right)}{\Gamma\left(\frac{q+n}{b}\right)}\begin{bmatrix}a+b\\ \text{pair}\end{bmatrix}$$ (IV, 243).

Dans 2) à 4) on a $a<b$.

5) $\int \frac{1+x}{1+x^2+2x\,Cos\lambda}\frac{dx}{(lx)^{1-q}} = Sec\frac{1}{2}\lambda.\Gamma(q)\sum_1^{\infty}(-1)^{n-1}\frac{Cos\{(n-\frac{1}{2})\lambda\}}{n^q}$ (VIII, 489).

6) $\int \frac{x^q-x^{1-q}}{1+x}\frac{dx}{x\,lx} = l\,Tg\frac{1}{2}q\pi$ V. T. 130, N. 9.

7) $\int \frac{(x^q-x^{-q})^2}{1+x}\frac{dx}{lx} = l(q\pi\,Cot\,q\pi)$ (VIII, 585*).

8) $\int \frac{x^q-x^{-q}}{1+x^2}\frac{dx}{lx} = l\,Tg\left(\frac{q+1}{4}\pi\right)$ V. T. 95, N. 3.

9) $\int \frac{x^p-x^{r-p}}{1+x^r}\frac{dx}{x\,lx} = l\,Tg\frac{p\pi}{2r}$ (IV, 244).

10) $\int \frac{x^p-x^q}{1+x^r}\frac{1+x^{r-p-q}}{x}\frac{dx}{lx} = l\left\{Tg\frac{p\pi}{2r}.Cot\frac{q\pi}{2r}\right\}$ V. T. 130, N. 9.

11) $\int \frac{x^q+x^{-q}-2}{1-x}\frac{dx}{lx} = l\left(\frac{1}{q\pi}Sin\,q\pi\right)$ (VIII, 585).

12) $\int \frac{(x^q-x^{-q})^2}{1-x^2}\frac{dx}{lx} = l\,Cos\,q\pi$ V. T. 130, N. 7, 13.

13) $\int \frac{(x^q-x^{-q})^2}{1-x^2}\frac{x\,dx}{lx} = l\left(\frac{1}{q\pi}Sin\,q\pi\right)$ V. T. 130, N. 11.

14) $\int \frac{(x^q - x^{-q})^2}{x^p - x^{-p}} \frac{dx}{x\,lx} = l\,Sec\,\frac{q\pi}{p}$ (VIII, 350).

15) $\int \frac{x^p - x^q}{(1-rx)^a} \frac{dx}{x\,lx} = l\frac{p}{q} + \sum_1^\infty \frac{a^{n/1}}{1^{n/1}} r^n\, l\frac{p+n}{q+n}$ $[r^2 \leqq 1]$ (VIII, 491).

16) $\int \frac{1-x}{1+x} \frac{1}{1+x^2} \frac{dx}{lx} = -\frac{1}{2} l2$ (VIII, 350).

17) $\int \frac{1-x}{1+x} \frac{x^2}{1+x^2} \frac{dx}{lx} = l\frac{2\sqrt{2}}{\pi}$ V. T. 127, N. 3 et T. 130, N. 16.

18) $\int \left\{(1-x) - \frac{(1-x^p)(1-x^q)}{1-x}\right\} \frac{dx}{x\,lx} = -\frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}$ (IV, 243).

19) $\int \left\{\frac{1}{1-x^2} + \frac{1}{2x\,lx}\right\} dx = -\frac{1}{2} l2$ V. T. 95, N. 11.

20) $\int \left\{\frac{x^{p-1}}{1-x} - \frac{x^{pq-1}}{1-x^q} - \frac{1}{x(1-x)} + \frac{1}{x(1-x^q)}\right\} \frac{dx}{lx} = q\,lp$ V. T. 94, N. 15.

21) $\int \left\{\frac{1}{1-x} - \frac{p x^{p-1}}{1-x^p} + \left(pq - \frac{p+1}{2}\right) x^{p-1} + (1-pq)\right\} \frac{dx}{lx} = \frac{1-p}{2} l(2\pi) + \left(pq - \frac{1}{2}\right) lp$

(IV, 244).

22) $\int \left\{\frac{x^{q-1}}{1-x} - \frac{x^{pq-1}}{1-x^p} - \frac{p-1}{1-x^p} x^{p-1} - \frac{1}{2}(p-1)\, x^{p-1}\right\} \frac{dx}{lx} = \frac{1-p}{2} l(2\pi) + \left(pq - \frac{1}{2}\right) lp$

(IV, 244).

23) $\int \left\{\frac{p}{x^p - x^{-p}} - \frac{q}{x^q - x^{-q}}\right\} \frac{dx}{x\,lx} = \frac{1}{2}(q-p)\, l2$ V. T. 95, N. 12.

24) $\int \left\{\frac{(p+qx^m)x^m}{r+sx^m+tx^{2m}} - \frac{(p+qx^n)x^n}{r+sx^n+tx^{2n}}\right\} \frac{dx}{lx} = \frac{p+q}{r+s+t}\, l\frac{n}{m}$ V. T. 96, N. 7.

F. Alg. rat. fract. à dén. composé; Log. en dén. d'autre forme. TABLE 131. Lim. 0 et 1.

1) $\int \frac{x^q + x^{-q}}{x^r + x^{-r}} \frac{dx}{x(lx)^p} = \Gamma(1-p) \sum_0^\infty (-1)^{p+n} \left[\frac{1}{\{(2n+1)r-q\}^{1-p}} + \frac{1}{\{(2n+1)r+q\}^{1-p}}\right]$

V. T. 95, N. 9.

2) $\int \frac{x^q - x^{-q}}{x^r - x^{-r}} \frac{dx}{x(lx)^p} = (-1)^p\, \Gamma(1-p) \sum_0^\infty \left[\frac{1}{\{2n+1)r-q\}^{1-p}} - \frac{1}{\{(2n+1)r+q\}^{1-p}}\right]$

V. T. 95, N. 10.

3) $\int \frac{x^p + x^{-p}}{1-x^2} \frac{lx . dx}{\pi^2 + (lx)^2} = \frac{1}{2}[1 - p\pi \, Sin p\pi - Cos p\pi . l\{2(1+Cos p\pi)\}]$ $[p \leqq 1]$ V. T. 97, N. 12.

4) $\int \frac{x^p - x^{-p}}{1-x^2} \frac{dx}{\pi^2 + (lx)^2} = \frac{1}{2\pi}[p\pi \, Cos p\pi - Sin p\pi . l\{2(1+Cos p\pi)\}]$ $[p \leqq 1]$ V. T. 97, N. 10.

5) $\int \frac{x^p + x^{-p}}{1-x^2} \frac{lx . dx}{\pi^2 + 4(lx)^2} = \frac{1}{4} - \frac{1}{8}\pi \, Cos \frac{1}{2}p\pi + \frac{1}{8} Sin \frac{1}{2}p\pi . l \frac{1 - Sin \frac{1}{2}p\pi}{1 + Sin \frac{1}{2}p\pi}$ $[p < 1]$ V. T. 97, N. 13.

6) $\int \frac{x^p - x^{-p}}{1-x^2} \frac{dx}{\pi^2 + 4(lx)^2} = \frac{1}{4\pi} Cos \frac{1}{2}p\pi . l \frac{1 + Sin \frac{1}{2}p\pi}{1 - Sin \frac{1}{2}p\pi} - \frac{1}{4} Sin \frac{1}{2}p\pi$ $[p \leqq 1]$ V. T. 97, N. 11.

7) $\int \frac{1}{x^p + x^{-p}} \frac{1}{q^2 + (lx)^2} \frac{dx}{x} = \frac{\pi}{q} \sum_1^\infty \frac{(-1)^{n-1}}{2pq + (2n-1)\pi}$ V. T. 97, N. 5.

8) $\int \frac{x^p - x^{-p}}{x^p + x^{-p}} \frac{lx}{q^2 + (lx)^2} \frac{dx}{x} = \pi \sum_1^\infty \frac{1}{2pq + (2n-1)\pi}$ V. T. 97, N. 6.

9) $\int \frac{lx}{x^p - x^{-p}} \frac{1}{q^2 + (lx)^2} \frac{dx}{x} = \frac{\pi}{4pq} + \frac{\pi}{2} \sum_1^\infty \frac{(-1)^n}{pq + n\pi}$ V. T. 97, N. 16.

10) $\int \frac{x^p + x^{-p}}{x^p - x^{-p}} \frac{lx}{q^2 + (lx)^2} \frac{dx}{x} = \frac{\pi}{2pq} + \pi \sum_1^\infty \frac{1}{pq + n\pi}$ V. T. 97, N. 17.

11) $\int \frac{x^{p-r} + x^{r-p}}{x^r - x^{-r}} \frac{lx}{q^2 + (lx)^2} \frac{dx}{x} = \frac{\pi}{2qr} + \pi \sum_1^\infty \frac{1}{qr + n\pi} Cos \frac{np\pi}{r}$ $[p^2 < r^2]$ V. T. 97, N. 19.

12) $\int \frac{x^{p-r} - x^{r-p}}{x^r - x^{-r}} \frac{1}{q^2 + (lx)^2} \frac{dx}{x} = -\frac{\pi}{q} \sum_1^\infty \frac{1}{qr + n\pi} Sin \frac{np\pi}{r}$ $[p^2 < r^2]$ V. T. 97, N. 18.

13) $\int \left\{ \left(q - \frac{1}{2}\right) \frac{x^{p-1} - x^{r-1}}{lx} + \frac{px^{p q-1}}{1-x^p} - \frac{rx^{q r-1}}{1-x^r} \right\} \frac{dx}{lx} = (p-r)\left\{\frac{1}{2} - q - l\Gamma(q) + \frac{1}{2}l(2\pi)\right\}$ (IV, 245).

F. Alg. irrat. fract.; Log. en dén. — TABLE 132. — Lim. 0 et 1.

1) $\int \frac{1}{(1+x)\sqrt{x}} \frac{dx}{\pi^2 + (lx)^2} = \frac{1}{2\pi} l2$ V. T. 97, N. 2.

2) $\int \frac{1}{(1+x)\sqrt{x}} \frac{dx}{4\pi^2 + (lx)^2} = \frac{4-\pi}{8\pi}$ V. T. 97, N. 1.

3) $\int \frac{1}{(1+x)\sqrt{x}} \frac{dx}{\pi^2 + 4(lx)^2} = \frac{1}{4\pi\sqrt{2}} \left\{\pi + l \frac{\sqrt{2}-1}{\sqrt{2}+1}\right\}$ V. T. 97, N. 3.

4) $\int \frac{1}{(1+x)\sqrt{x}} \frac{dx}{q^2 + (lx)^2} = \frac{1}{4q} \left\{ Z'\left(\frac{q+3\pi}{4\pi}\right) - Z'\left(\frac{q+\pi}{4\pi}\right) \right\}$ V. T. 97, N. 4.

5) $\int \frac{lx}{(1-x)\sqrt{x}} \frac{dx}{\pi^2+(lx)^2} = \frac{1}{2} - \frac{1}{4}\pi$ V. T. 97, N. 8.

6) $\int \frac{lx}{(1-x)\sqrt{x}} \frac{dx}{\pi^2+4(lx)^2} = -\frac{\pi}{8\sqrt{2}} + \frac{1}{4} + \frac{1}{8\sqrt{2}}\, l\frac{\sqrt{2}-1}{\sqrt{2}+1}$ V. T. 97, N. 9.

7) $\int \frac{1}{(1+\sqrt{x})\sqrt[4]{x^3}} \frac{dx}{\pi^2+(lx)^2} = \frac{1}{2\pi\sqrt{2}}\left\{\pi + l\frac{\sqrt{2}-1}{\sqrt{2}+1}\right\}$ V. T. 97, N. 3.

8) $\int \frac{lx}{(1-\sqrt{x})\sqrt[4]{x^3}} \frac{dx}{\pi^2+(lx)^2} = -\frac{\pi}{2\sqrt{2}} + 1 + \frac{1}{2\sqrt{2}}\, l\frac{\sqrt{2}-1}{\sqrt{2}+1}$ V. T. 97, N. 9.

9) $\int \frac{x^p - x^{-p}}{(1-x)\sqrt{x}} \frac{dx}{\pi^2+(lx)^2} = -\frac{1}{2} \mathrm{Sin}\, p\pi + \frac{1}{2\pi} \mathrm{Cos}\, p\pi \,.\, l\frac{1+\mathrm{Sin}\, p\pi}{1-\mathrm{Sin}\, p\pi} \left[p<\frac{1}{2}\right]$ V. T. 97, N. 11.

10) $\int \frac{x^p + x^{-p}}{(1-x)\sqrt{x}} \frac{lx\,.\,dx}{\pi^2+(lx)^2} = 1 - \frac{1}{2}\pi\, \mathrm{Cos}\, p\pi + \frac{1}{2} \mathrm{Sin}\, p\pi \,.\, l\frac{1-\mathrm{Sin}\, p\pi}{1+\mathrm{Sin}\, p\pi} \left[p<\frac{1}{2}\right]$ V. T. 97, N. 13.

11) $\int \frac{x^p - x^{-p}}{(1-x)\sqrt{x}} \frac{dx}{4\pi^2+(lx)^2} = -\frac{1}{4\pi}\left[2p\pi \,\mathrm{Cos}\, 2p\pi + \mathrm{Sin}\, 2p\pi \,.\, l\{2(1+\mathrm{Cos}\, 2p\pi)\}\right]$ V. T. 97, N. 10.

12) $\int \frac{x^p + x^{-p}}{(1-x)\sqrt{x}} \frac{lx\,.\,dx}{4\pi^2+(lx)^2} = \frac{1}{2}\left[-1 + 2p\pi \,\mathrm{Sin}\, 2p\pi + \mathrm{Cos}\, 2p\pi \,.\, l\{2(1+\mathrm{Cos}\, 2p\pi)\}\right]$ V. T. 97, N. 12.

13) $\int \frac{x^{\frac{1}{2}(p-1)} - x^{\frac{1}{2}(1-p)}}{(1-x)\sqrt{x}} \frac{dx}{q^2+(lx)^2} = \frac{2\pi}{q}\sum_1^\infty \frac{\mathrm{Sin}\, n p\pi}{q+n\pi}$ $[p<1]$ V. T. 97, N. 18.

14) $\int \frac{x^{\frac{1}{2}(p-1)} + x^{\frac{1}{2}(1-p)}}{(1-x)\sqrt{x}} \frac{lx\,.\,dx}{q^2+(lx)^2} = -\frac{\pi}{q} - 2\pi\sum_1^\infty \frac{\mathrm{Cos}\, n p\pi}{q+n\pi}$ V. T. 97, N. 19.

15) $\int \frac{1-x^{q-1}}{1-x} \frac{1-x^{q-\frac{1}{2}}}{\sqrt{x}} \frac{dx}{lx} = -(2q-2)\, l2$ (IV, 246).

16) $\int \left\{\frac{1}{1-x} + \frac{1}{lx} - \frac{1}{2}\right\} \frac{dx}{lx\,.\sqrt{x}} = \frac{1}{2}(l2-1)$ V. T. 94, N. 24.

17) $\int \left\{\frac{1}{lx} - \frac{1}{2} - \frac{1}{lx\,.\sqrt{x}}\right\} \frac{dx}{lx} = \frac{1}{2}(l2-1)$ V. T. 89, N. 19.

18) $\int \left\{\left(\frac{1}{lx} - \frac{1}{2}\right)\sqrt{x} + \left(\frac{1}{2} + \frac{1}{1-x}\right)x\right\} \frac{dx}{x\, lx} = \frac{1}{2}\, l2\pi - \frac{1}{2}$ V. T. 94, N. 27.

19) $\int \left\{\frac{1}{2} - \frac{1}{1+\sqrt{x}}\right\} \frac{dx}{lx} = \frac{1}{2}\, l\frac{4}{\pi}$ V. T. 94, N. 5.

20) $\int \left\{\frac{1}{1-x} - \frac{x}{1-x^2} + \frac{1}{lx\,.\sqrt{x}} - \frac{1}{2\,lx}\right\} \frac{dx}{lx} = 0$ V. T. 94, N. 23.

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21) $\int\left\{\frac{b}{lx}+\frac{x^{q-1}}{1-\sqrt[b]{x}}\right\}dx=b\,lb-bZ'(bq)$ (IV, 247).

22) $\int\left\{\frac{a-1}{2}+\frac{a-1}{1-x}+\frac{x^{p-1}}{1-\sqrt[a]{\frac{1}{x}}}+\frac{x^{ap}}{1-x}\right\}\frac{dx}{lx}=\left(ap+\frac{1}{2}\right)la-\frac{1}{2}(a-1)l2\pi$ V. T. 94, N. 14.

23) $\int\left\{\left(p-\frac{1}{2}\right)x+\left(\frac{1}{2}-\frac{1}{lx}\right)\left(x^{p-1}-\sqrt{\frac{1}{x}}\right)\right\}\frac{dx}{lx}=\left(\frac{1}{2}-p\right)(lp-1)$ V. T. 89, N. 22.

24) $\int\left\{\frac{x^{q-1}}{1-x}-\frac{x^{pq-1}+(p-1)x^{p-1}}{1-x^p}\right\}\frac{dx}{lx}=\frac{1}{2}(1-p)l2+\left(pq-\frac{1}{2}\right)lp$ (IV, 247).

F. Alg. rat.; Log. en dén. sous forme irrat. — TABLE 133. — Lim. 0 et 1.

1) $\int\frac{x^{p-1}}{\sqrt{l\frac{1}{x}}}dx=\sqrt{\frac{\pi}{p}}$ (VIII, 542).

2) $\int\frac{1}{\sqrt{l\frac{1}{x}}}\,\frac{dx}{1+x^2}=\sqrt{\pi}.\sum_0^\infty\frac{(-1)^n}{\sqrt{2n+1}}$ V. T. 98, N. 25.

3) $\int\frac{1}{\sqrt{l\frac{1}{x}}}\,\frac{dx}{1+x+x^2}=Cosec\frac{1}{3}\pi.\sqrt{\pi}.\sum_1^\infty\frac{(-1)^{n-1}}{\sqrt{n}}Sin\frac{1}{3}n\pi$ V. T. 98, N. 26.

4) $\int\frac{x^{p-1}-x^{q-1}}{\left(l\frac{1}{x}\right)^{1-\frac{1}{a}}}dx=\frac{a\Gamma\left(\frac{1}{a}\right)}{a-1}\left(q^{1-\frac{1}{a}}-p^{1-\frac{1}{a}}\right)$ $[q>p>0]$ V. T. 98, N. 21.

5) $\int\frac{Sin\lambda-x^a Sin\{(a+1)\lambda\}+x^{a+1}Sin\,a\lambda}{1-2x Cos\lambda+x^2}\,\frac{dx}{\sqrt{l\frac{1}{x}}}=\sqrt{\pi}.\sum_1^a\frac{Sin\,n\lambda}{\sqrt{n}}$ (VIII, 476).

6) $\int\frac{Cos\lambda-x-x^{a-1}Cos\,a\lambda+x^a Cos\{(a-1)\lambda\}}{1-2x Cos\lambda+x^2}\,\frac{dx}{\sqrt{l\frac{1}{x}}}=\sqrt{\pi}.\sum_1^{a-1}\frac{Cos\,n\lambda}{\sqrt{n}}$ (VIII, 476).

F. Alg. rat. fract. à dén. mon.; Log. en num. $[p<1]$. — TABLE 134. — Lim. 0 et ∞.

1) $\int l(1+x)\frac{dx}{x^{1-p}}=\frac{\pi}{1-p}Cosec\,p\pi$ V. T. 17, N. 10.

2) $\int l(1+x)\frac{dx}{x^{1+p}}=\frac{\pi}{p}Cosec\,p\pi$ V. T. 18, N. 1.

3) $\int l(1+qx)\frac{dx}{x^{2-p}} = \frac{\pi}{(1-p)q^{p-1}}\, Cosec\, p\pi$ V. T. 16, N. 1.

4) $\int l(1-x)\frac{dx}{x^{2-p}} = \frac{\pi}{p-1}\, Cot\, p\pi$ V. T. 17, N. 11.

5) $\int l(1+x^3)\frac{dx}{x^2} = \frac{2\pi}{\sqrt{3}}$ V. T. 17, N. 3.

6) $\int l(1+x^3)\frac{dx}{x^3} = \frac{\pi}{3}\sqrt{3}$ V. T. 17, N. 2.

7) $\int l(q^2-x^3)\frac{dx}{x^3} = \frac{\pi}{4q^2}\sqrt{3}$ V. T. 17, N. 4.

8) $\int l(1+x^4)\frac{dx}{x^2} = \pi\sqrt{2}$ V. T. 17, N. 6.

9) $\int l(1+x^4)\frac{dx}{x^4} = \frac{1}{3}\pi\sqrt{2}$ V. T. 17, N. 5.

10) $\int l(1+x^6)\frac{dx}{x^2} = 2\pi$ V. T. 17, N. 8.

11) $\int l(1+x^6)\frac{dx}{x^6} = \frac{2}{5}\pi$ V. T. 17, N. 7.

12) $\int l(1+x^q)\frac{dx}{x^{1+r}} = \frac{\pi}{r}\, Cosec\, \frac{r\pi}{q}$ V. T. 17, N. 10.

13) $\int l(1-x^q)\frac{dx}{x^{1+r}} = -\frac{\pi}{r}\, Cot\, \frac{r\pi}{q}$ V. T. 17, N. 11.

14) $\int l\left\{\frac{(x+1)(x+q^2)}{(x+q)^2}\right\}\frac{dx}{x} = (lq)^2$ $[q>1]$ (IV, 249).

15) $\int l\left\{\frac{(1+x)^2}{1+2x\, Cos\, \lambda+x^2}\right\}\frac{dx}{x} = \lambda^2$ $[\lambda<\pi, q>1]$ (VIII, 584).

16) $\int l\left\{\frac{(x+1)(x+q^2)}{(x+q)^2}\right\}\frac{dx}{x^{1-p}} = \frac{\pi}{p}\, Cosec\, p\pi\,.(q^p-1)^2$ $[q>1]$ (IV, 249).

17) $\int l\left\{\frac{(x+1)^2}{1+2x\, Cos\, \lambda+x^2}\right\}\frac{dx}{x^{1-p}} = \frac{2\pi}{p}\, Cosec\, p\pi\,.(1-Cos\, p\lambda)$ $[\lambda<\pi]$ (VIII, 584).

18) $\int lx\,.\,l(1+q^2x^2)\frac{dx}{x^2} = \pi q(1-lq)$ (VIII, 608).

19) $\int \{l(1+p^2x^2)\}^2\frac{dx}{x^2} = 4p\pi\, l2$ (VIII, 607).

20) $\int l(1+q^2x^2)\,.\,l(1+r^2x^2)\frac{dx}{x^2} = 2\pi\{(p+q)l(p+q)-p\,lp-q\,lq\}$ (VIII, 607).

21) $\int l\left(p^2+x^2\right).\,l\left(1+q^2x^2\right)\frac{dx}{x^2} = 2\pi\left\{\frac{1+pq}{p}l(1+pq)-q\,lq\right\}$ (VIII, 608).

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22) $\int l(1+q^2x^2).l\left(r^2+\frac{1}{x^2}\right)\frac{dx}{x^2}=2\pi\{(q+r)l(q+r)-rlr-q\}$ (VIII, 608).

23) $\int l\left(1+\frac{x^2}{r^2}\right).l\left(1+\frac{q^2}{x^2}\right)\frac{dx}{x^2}=2\pi\frac{q+r}{qr}l\left(\frac{q+r}{r}\right)-\frac{2\pi}{r}$ (VIII, 608*).

24) $\int lx.l\left(\frac{1+p^2x^2}{1+q^2x^2}\right)\frac{dx}{x^2}=\pi(p-q)+\pi l\frac{q^q}{p^p}$ V. T. 33, N. 1.

25) $\int lx.l\left(\frac{q^2+2rx+x^2}{q^2-2rx+x^2}\right)\frac{dx}{x}=2\pi lq.\mathrm{Arcsin}\frac{r}{q}$ $[q\geqq r]$ (VIII, 559).

26) $\int l(1-x^r).\{(q-r)lx+1\}\frac{dx}{x^{1+r-q}}=-\frac{\pi^2}{r}\mathrm{Cosec}^2\frac{q\pi}{r}$ $[q<r]$ V. T. 135, N. 8.

F. Alg. rat. fract. à dén. bin.; Log. en num. $(lx)^a$. TABLE 135. Lim. 0 et ∞.

1) $\int lx\frac{x^{p-1}dx}{x+q}=\pi q^{p-1}\mathrm{Cosec}\,p\pi.(lq-\pi\,\mathrm{Cot}\,p\pi)$ $[p<1]$ (IV, 250).

2) $\int (lx)^{2a+1}\frac{dx}{1+x^2}=0$ (VIII, 285).

3) $\int (lx)^{2a}\frac{dx}{1+x^2}=2.1^{2a/1}\sum_0^\infty\frac{(-1)^n}{(2n+1)^{2a+1}}$ (VIII, 285).

4) $\int l(px)\frac{dx}{q^2+x^2}=\frac{\pi}{2q}lpq$ (VIII, 456).

5) $\int lx\frac{dx}{p^2+q^2x^2}=\frac{\pi}{2pq}l\frac{p}{q}$ (VIII, 274).

6) $\int lx\frac{dx}{p^2-q^2x^2}=-\frac{q}{4p}\pi^2$ (VIII, 285*).

7) $\int lx\frac{x^{p-1}dx}{1+x^q}=-\left(\frac{\pi}{q}\right)^2\mathrm{Cos}\frac{p\pi}{q}.\mathrm{Cosec}^2\frac{p\pi}{q}$ $[p^2<q^2]$ (VIII, 486).

8) $\int lx\frac{x^{p-1}dx}{1-x^q}=-\left(\frac{\pi}{q}\right)^2\mathrm{Cosec}^2\frac{p\pi}{q}$ (VIII, 485).

9) $\int lx\frac{1-x^p}{1-x^2}dx=\frac{1}{4}\pi^2\,\mathrm{Tg}^2\frac{1}{2}p\pi$ V. T. 135, N. 8.

10) $\int lx\frac{1-x}{1-x^{2a}}x^{a-2}dx=-\left(\frac{\pi}{2a}\mathrm{Tg}\frac{\pi}{2a}\right)^2$ $[a>1]$ (IV, 251).

11) $\int lx\frac{1-x^2}{1-x^{2a}}x^{a-3}dx=-\left(\frac{\pi}{2a}\mathrm{Tg}\frac{\pi}{a}\right)^2$ $[a>2]$ (IV, 251).

12) $\int lx \frac{1-x^2}{1-x^{2b}} x^{a-1} dx = -\left(\frac{\pi}{2b}\right)^2 Cosec^2 \frac{a\pi}{2b} . Cosec^2\left(\frac{a+2}{2b}\pi\right) . Sin\left(\frac{a+1}{b}\pi\right) . Sin\frac{\pi}{b}$ (IV, 251).

13) $\int (lx)^2 \frac{1+x^2}{1+x^4} dx = \frac{3\sqrt{2}}{32}\pi^3$ (VIII, 568).

F. Alg. rat. fract. à dén. bin.; Log. en num. d' autre forme ent. **TABLE 136.** Lim. 0 et ∞.

1) $\int l(1+x)\frac{dx}{1+x^2} = \frac{\pi}{4} l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ (VIII, 534).

2) $\int l(1-x)^2 \frac{dx}{1+x^2} = \frac{\pi}{2} l2 + 2\sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 114, N. 17 et T. 115, N. 5.

3) $\int l(1+x^2)\frac{dx}{1+x^2} = \pi l2$ (VIII, 604*).

4) $\int l(1+x^2)\frac{dx}{1-x^2} = -\frac{1}{4}\pi^2$ (VIII, 278).

5) $\int l(1-x^2)^2 \frac{dx}{1+x^2} = \pi l2$ V. T. 136, N. 1, 2.

6) $\int l(1+x^3)\frac{dx}{1+x^2} = \frac{1}{9}\pi^2 - \frac{\pi}{\sqrt{3}} l3$ V. T. 138, N. 13.

7) $\int l(1+x^3)\frac{x\,dx}{1+x^2} = -\frac{1}{9}\pi^2 - \frac{\pi}{\sqrt{3}} l3$ V. T. 138, N. 12.

8) $\int l(1+x^3)\frac{dx}{1-x+x^2} = -\frac{2\pi}{\sqrt{3}} l3$ V. T. 138, N. 14.

9) $\int l(1+x^3)\frac{1-x}{1+x^3} dx = \frac{2}{9}\pi^2$ V. T. 138, N. 15.

10) $\int l(1-x^4)^2 \frac{dx}{1+x^2} = 3\pi l2$ V. T. 136, N. 3, 5.

11) $\int l(1+p^2x^2)\frac{dx}{q^2+x^2} = \frac{\pi}{q} l(1+pq)$ (VIII, 604).

12) $\int l(1+p^2x^2)\frac{dx}{1+q^2x^2} = \frac{\pi}{q} l\frac{p+q}{q}$ (VIII, 604).

13) $\int l(p^2+x^2)\frac{dx}{q^2+x^2} = \frac{\pi}{q} l(p+q)$ (VIII, 604).

14) $\int l(p^2+x^2)\frac{dx}{1+q^2x^2} = \frac{\pi}{q} l\frac{1+pq}{q}$ (VIII, 604).

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15) $\int l(p^2+x^2)\frac{dx}{q^2-x^2}=-\frac{\pi}{q}Arctg\frac{q}{p}$ V. T. 135, N. 6 et T. 138, N. 11.

16) $\int l(p^2-x^2)^2\frac{dx}{q^2+x^2}=\frac{\pi}{q}l(p^4+q^4)$ V. T. 248, N. 10.

17) $\int l(p^4-x^4)^2\frac{dx}{q^2+x^2}=\frac{\pi}{q}l\{(p^4+q^4)(p+q)^4\}$ V. T. 248, N. 11.

F. Alg. rat. fract. à dén. binôme; Log. en num. de fonct. fract. à dén. x. TABLE 137. Lim. 0 et ∞.

1) $\int l\left(\frac{1+x^2}{x}\right)\frac{x^{2a-1}dx}{1+x}=\frac{1}{2a}l2+\frac{1}{4a^2}-\frac{1}{2a}\sum_0^\infty\frac{(-1)^n}{2a+n+1}$ (VIII, 422).

2) $\int l\left(\frac{1+x^2}{x}\right)\frac{x^{2a-1}dx}{1-x}=\frac{1}{2a}l2+\frac{1}{4a^2}-\frac{1}{2a}\sum_0^\infty\frac{(-1)^n}{2a+n+1}$ (VIII, 422).

3) $\int l\left(\frac{1+x^2}{x}\right)\frac{x^{2a}dx}{1+x}=\frac{1}{4a^2}\left\{2al2+1+2a\sum_0^\infty\frac{(-1)^{n-1}}{2a+n+1}\right\}$ (VIII, 422).

4) $\int l\left(\frac{1+x^2}{x}\right)\frac{x^{2a}dx}{1-x}=\frac{1}{4a^2}\left\{-1-2al2+2a\sum_0^\infty\frac{(-1)^n}{2a+n+1}\right\}$ (VIII, 422).

5) $\int l\left(\frac{1+x}{x}\right)\frac{dx}{1+x^2}=\frac{\pi}{4}l2+\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 135, N. 2 et T. 136, N. 1.

6) $\int l\left\{\frac{(1+x)^2}{x}\right\}\frac{dx}{1+x^2}=\frac{\pi}{2}l2+2\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ (VIII, 534).

7) $\int l\left\{\frac{(1-x)^2}{x}\right\}\frac{dx}{1+x^2}=\frac{\pi}{2}l2+2\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 135, N. 2 et T. 136, N. 2.

8) $\int l\left(\frac{1+x^2}{x}\right)\frac{dx}{1+x^2}=\pi l2$ V. T. 135, N. 2 et T. 136, N. 13.

9) $\int l\left(\frac{1+x^2}{x}\right)\frac{dx}{1-x^2}=0$ (VIII, 278).

10) $\int l\left(\frac{1+x^2}{x}\right)\frac{x^{2a-1}dx}{1+x^2}=\frac{1}{2a}l2+\frac{1}{4a^2}+\frac{1}{2a}\sum_0^\infty\frac{(-1)^{n-1}}{2a+n+1}$ (VIII, 422).

11) $\int l\left(\frac{1+x^2}{x}\right)\frac{x^{2a-1}dx}{1-x^2}=\frac{1}{2a}l2+\frac{1}{4a^2}+\frac{1}{2a}\sum_0^\infty\frac{(-1)^{n-1}}{2a+n+1}$ (VIII, 422).

12) $\int l\left(\frac{1+x^2}{x}\right)\frac{x^{2a-1}dx}{1-x^4}=\frac{1}{2a}l2+\frac{1}{4a^2}-\frac{1}{2a}\sum_0^\infty\frac{(-1)^n}{2a+n+1}$ (VIII, 422).

1) $\int l\left\{\frac{(1-x)^2}{x^2}\right\}\frac{dx}{1+x^2}=\frac{\pi}{2}l2+2\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 135, N. 2 et T. 136, N. 2.

2) $\int l\left(\frac{1+x^2}{x^2}\right)\frac{dx}{1+x^2}=\pi l2$ V. T. 135, N. 2 et T. 136, N. 13.

3) $\int l\left(\frac{1+x^2}{x^2}\right)\frac{x\,dx}{1+x^2}=\frac{1}{12}\pi^2$ (VIII, 291).

4) $\int l\left\{\frac{(1-x^2)^2}{x^2}\right\}\frac{dx}{1+x^2}=\pi l2$ V. T. 135, N. 2 et T. 136, N. 5.

5) $\int l\left\{\frac{(1-x^4)^2}{x^2}\right\}\frac{dx}{1+x^2}=3\pi l2$ V. T. 135, N. 2 et T. 136, N. 10.

6) $\int l\left(\frac{1+p^2x^2}{x^2}\right)\frac{dx}{q^2+x^2}=\frac{\pi}{q}l\frac{1+pq}{q}$ (VIII, 604).

7) $\int l\left(\frac{1+p^2x^2}{x^2}\right)\frac{dx}{1+q^2x^2}=\frac{\pi}{q}l(p+q)$ (VIII, 604).

8) $\int l\left(\frac{1+p^2x^2}{x^2}\right)\frac{dx}{q^2-x^2}=\frac{\pi}{q}\operatorname{Arccot}pq$ (VIII, 360).

9) $\int l\left(\frac{p^2+x^2}{x^2}\right)\frac{dx}{1+q^2x^2}=\frac{\pi}{q}l(1+pq)$ (VIII, 604).

10) $\int l\left(\frac{p^2+x^2}{x^2}\right)\frac{dx}{q^2+x^2}=\frac{\pi}{q}l\frac{p+q}{q}$ (VIII, 604).

11) $\int l\left(\frac{p^2+x^2}{x^2}\right)\frac{dx}{q^2-x^2}=\frac{\pi}{q}\operatorname{Arctg}\frac{p}{q}$ (VIII, 360).

12) $\int l\left(\frac{1+x^3}{x^3}\right)\frac{dx}{1+x^3}=\frac{\pi}{\sqrt{3}}l3+\frac{1}{9}\pi^2$ (IV, 258*).

13) $\int l\left(\frac{1+x^3}{x^3}\right)\frac{x\,dx}{1+x^3}=\frac{\pi}{\sqrt{3}}l3-\frac{1}{9}\pi^2$ (IV, 258*).

14) $\int l\left(\frac{1+x^3}{x^3}\right)\frac{dx}{1-x+x^2}=\frac{2\pi}{\sqrt{3}}l3$ V. T. 138, N. 12, 13.

15) $\int l\left(\frac{1+x^3}{x^3}\right)\frac{1-x}{1+x^3}dx=\frac{2}{9}\pi^2$ V. T. 138, N. 12, 13.

16) $\int l\left\{\frac{(1-x^2)^2}{x^4}\right\}\frac{dx}{1+x^2}=\pi l2$ V. T. 135, N. 2 et T. 136, N. 5.

17) $\int l\left\{\frac{(1-x^4)^2}{x^4}\right\}\frac{dx}{1+x^2}=3\pi\, l2$ V. T. 135, N. 2 et T. 136, N. 10.

18) $\int l\left\{\frac{(1-x^4)^2}{x^6}\right\}\frac{dx}{1+x^2}=3\pi\, l2$ V. T. 135, N. 2 et T. 136, N. 10.

19) $\int l\left\{\frac{(1-x^4)^2}{x^8}\right\}\frac{dx}{1+x^2}=3\pi\, l2$ V. T. 135, N. 2 et T. 136, N. 10.

20) $\int l(x^p+x^{-p})\frac{dx}{1-x^2}=0$ (VIII, 278).

21) $\int l\left(\frac{1+x}{1-x}\right)^2\frac{dx}{1+x^2}=4\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 136, N. 1, 2.

22) $\int l\frac{1+x^2}{1+x}\frac{dx}{1+x^2}=\frac{3\pi}{4}l2+\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 136, N. 1, 13.

23) $\int l\left(\frac{1+x^2}{1-x}\right)^2\frac{dx}{1+x^2}=\frac{3\pi}{2}l2+2\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 136, N. 2, 13.

24) $\int l\left(\frac{1+x^2}{1-x^2}\right)^2\frac{dx}{1+x^2}=\pi\, l2$ V. T. 136, N. 5, 13.

25) $\int l\left(\frac{1+x}{1-x}\right)^2\frac{x\,dx}{1+x^2}=\frac{1}{2}\pi^2$ V. T. 315, N. 15.

26) $\int l\left(\frac{r^2+x^2}{p^2+x^2}\right)\frac{dx}{q^2+x^2}=\frac{\pi}{q}l\frac{1+qr}{1+pq}$ (VIII, 291*).

F. Alg. rat. fract. à dén. puiss. de bin.; Log. en num. TABLE 139. Lim. 0 et ∞.

1) $\int lx\frac{dx}{(q+x)^2}=\frac{1}{q}lq$ $[q<1]$ V. T. 139, N. 7.

2) $\int lx\frac{dx}{(q+x)^{p+1}}=\frac{1}{pq^p}\{lq-A-Z'(p)\}=\frac{1}{pq^p}\left\{lq-\sum_1^{p-1}\frac{1}{n}\right\}$ [p entier] (IV, 252).

3) $\int lx\frac{dx}{(q^2+r^2x^2)^p}=\frac{\Gamma(p-\frac{1}{2})}{4q^{2p-1}r\Gamma(p)}\sqrt{\pi}.\left\{2l\frac{q}{2r}-A-Z'\left(p-\frac{1}{2}\right)\right\}$ (IV, 252).

4) $\int (lx)^2\frac{dx}{(1-x)^2}=\frac{2}{3}\pi^2$ (IV, 252).

5) $\int l(1+x)\frac{dx}{(px+q)^2}=\frac{1}{p(p-q)}l\frac{p}{q}$ (VIII, 591).

6) $\int l(p+x)\frac{dx}{(q-x)^2}=\frac{1}{p+q}l\frac{p}{q}-\frac{1}{q}lp$ V. T. 139, N. 8.

7) $\int l(p-x)^2\frac{dx}{(q+x)^2}=\frac{2}{p+q}\left\{lq+\frac{p}{q}lp\right\}$ V. T. 139, N. 8.

8) $\int l(px+q)\frac{dx}{(1+x)^2}=\frac{1}{p-q}\{plp-qlq\}$ (VIII, 591).

9) $\int l(p+x)\frac{x\,dx}{(q^2+x^2)^2}=\frac{1}{2(p^2+q^2)}\left\{lq+\frac{p\pi}{2q}+\frac{p^2}{q^2}lp\right\}$ (VIII, 590).

10) $\int l(p-x)^2\frac{x\,dx}{(q^2+x^2)^2}=\frac{1}{p^2+q^2}\left\{lq-\frac{p\pi}{2q}+\frac{p^2}{q^2}lp\right\}$ (VIII, 591).

11) $\int l(p+x)\frac{q^2-x^2}{(q^2+x^2)^2}dx=\frac{1}{p^2+q^2}\left\{pl\frac{q}{p}-\frac{1}{2}q\pi\right\}$ (IV, 253*).

12) $\int l(p-x)^2\frac{q^2-x^2}{(q^2+x^2)^2}dx=\frac{2}{p^2+q^2}\left\{pl\frac{p}{q}-\frac{1}{2}q\pi\right\}$ (IV, 253*).

13) $\int l(1+x)\frac{1+x^2}{(1+x)^4}dx=\frac{1}{2}$ V. T. 139, N. 14.

14) $\int l(1+x)\frac{1+x^2}{(px+q)^2}\frac{dx}{(p+qx)^2}=\frac{1}{pq(p^2-q^2)}l\frac{p}{q}$ V. T. 139, N. 5.

15) $\int l(1+x^2)\frac{dx}{(1+x^2)^2}=\frac{\pi}{2}\left(l2-\frac{1}{2}\right)$ (VIII, 292).

16) $\int l(p^2+x^2)\frac{dx}{(q+x)^2}=\frac{1}{p^2+q^2}\left\{p\pi+2qlq+\frac{2p^2}{q}lp\right\}$ (VIII, 590).

17) $\int l(p^2+x^2)\frac{dx}{(q-x)^2}=\frac{1}{p^2+q^2}\left\{p\pi-2qlq-\frac{2p^2}{q}lp\right\}$ (VIII, 591).

18) $\int l(p^2+x^2)\frac{q^2-x^2}{(q^2+x^2)^2}dx=-\frac{\pi}{p+q}$ (IV, 253).

19) $\int l(p^2+x^2)\frac{q^2+x^2}{(q^2-x^2)^2}dx=\frac{p\pi}{p^2+q^2}$ (IV, 253).

20) $\int l(p^2-x^2)^2\frac{q^2-x^2}{(q^2+x^2)^2}dx=-\frac{2q\pi}{p^2+q^2}$ (IV, 253).

21) $\int l\left(\frac{1+x^2}{x^2}\right)\frac{x^2\,dx}{(1+x^2)^2}=\frac{\pi}{4}(2l2-1)$ (VIII, 292).

22) $\int l\left(\frac{p+x}{p-x}\right)^2 \frac{x\,dx}{(q^2+x^2)^2} = \frac{p}{p^2+q^2}\,\frac{\pi}{q}$ (IV, 253).

23) $\int l\left(\frac{px+q}{qx+p}\right) \frac{dx}{(1+x)^2} = 0$ V. T. 139, N. 8.

F. Alg. rat. fract. à autre dén.; Log. en num. lx. TABLE 140. Lim. 0 et ∞.

1) $\int lx \frac{x^p\,dx}{(1-x)x} = -\pi^2\, Cosec^2\, p\pi\; [p<1]$ (IV, 254).

2) $\int \frac{lx}{x^r-1}\,\frac{dx}{x^p} = \left\{\frac{\pi}{r}\, Cosec\left(\frac{p-1}{r}\pi\right)\right\}^2$ V. T. 135, N. 8.

3) $\int lx \frac{1-x^p}{1-x^2}\,dx = \left(\frac{1}{2}\pi\, Tg\, \frac{1}{2}p\pi\right)^2$ (IV, 254).

4) $\int lx.\left(\frac{x^p}{1+x^{2p}}\right)^q \frac{dx}{x} = 0 =$ 5) $\int lx.\left(\frac{x^p}{1+x^{2p}}\right)^q \frac{dx}{1+x^2}$ (VIII, 272).

6) $\int lx.\left(\frac{x}{q^2+x^2}\right)^p \frac{dx}{x} = \frac{1}{2} q^{-p}\, lq\, \frac{\{\Gamma(\frac{1}{2}p)\}^2}{\Gamma(p)}$ (VIII, 272).

7) $\int l\frac{x}{q}.\left(\frac{x}{q^2+x^2}\right)^p \frac{dx}{x} = 0$ (VIII, 272).

8) $\int \frac{lx}{x+q}\,\frac{dx}{x+1} = \frac{1}{2(q-1)}(lq)^2$ (IV, 254).

9) $\int \frac{lx}{x+q}\,\frac{x^p}{x+1}\,dx = \frac{\pi}{q-1}\, Cosec^2\, p\pi.\{q^p\, Sin\, p\pi.\, lq + (1-q^p)\pi\, Cos\, p\pi\}$ (IV, 254).

10) $\int \frac{lx}{x+q}\,\frac{dx}{x-1} = \frac{1}{2(1+q)}\{\pi^2+(lq)^2\}$ (VIII, 579).

11) $\int \frac{lx}{x+q}\,\frac{x^p\,dx}{x-1} = \frac{\pi}{1+q}\, Cosec^2\, p\pi.\{\pi + q^p\,(Sin\, p\pi.\, lq - \pi\, Cos\, p\pi)\}$ (VIII, 579).

12) $\int \frac{lx}{x^2+q^2}\,\frac{dx}{1+p^2x^2} = -\frac{\pi}{2pq(1-p^2q^2)}\, lp$ V. T. 135, N. 4, 5.

13) $\int lx \frac{q+x^2}{p^2+x^2}\,\frac{dx}{1+x^2} = \frac{\pi}{4}\,\frac{1+q}{p}\, lp$ V. T. 321, N. 15, 16.

14) $\int (lx)^{q-1} \frac{x^p\,dx}{1-2rx\,Cos\lambda+r^2x^2} = (-1)^{q-1}\frac{1}{r}\, Cosec\,\lambda.\Gamma(q)\sum_0^\infty \frac{r^n}{(p+n)^q}\, Sin\, n\lambda$ (VIII, 514).

15) $\int (lx)^{q-1} \frac{1 - rx\, Cos\lambda}{1 - 2rx\, Cos\lambda + r^2 x^2} x^{p-1}\, dx = (-1)^{q-1} \Gamma(q) \sum_0^\infty \frac{r^n}{(p+n)^q} Cos\, n\lambda$ (VIII, 514).

16) $\int (lx)^{2a+1} \frac{dx}{1 - 2x\, Cos\lambda + x^2} = 0$ De Morgan, Int. Calc.

F. Alg. rat. fract. à autre dén.; Log. en num. d'autre forme. TABLE 141. Lim. 0 et ∞.

1) $\int (lx)^2 \frac{dx}{(x-1)(x+q)} = \frac{1}{3(1+q)} lq . \{\pi^2 + (lq)^2\}$ (VIII, 579).

2) $\int (lx)^3 \frac{dx}{(x-1)(x+q)} = \frac{1}{4(1+q)} \{\pi^2 + (lq)^2\}^2$ (VIII, 580).

3) $\int (lx)^4 \frac{dx}{(x-1)(x+q)} = \frac{1}{15(1+q)} lq . \{\pi^2 + (lq)^2\}^2 \{7\pi^2 + 3(lq)^2\}$ (VIII, 580).

4) $\int (lx)^5 \frac{dx}{(x-1)(x+q)} = \frac{1}{6(1+q)} \{\pi^2 + (lq)^2\}^2 \{3\pi^2 + (lq)^2\}^2$ (VIII, 580).

5) $\int lx . l\frac{x}{q} \frac{dx}{(x-1)(x-q)} = \frac{1}{6(q-1)} lq . \{4\pi^2 + (lq)^2\} [p^2 < 1, q > 1]$ (IV, 255).

6) $\int lx . l\frac{x}{q} \frac{x^p}{x-1} \frac{dx}{x-q} = \frac{\pi^2}{q-1} Cosec^2 p\pi . \{(q^p + 1) lq - 2\pi (q^p - 1) Cot p\pi\} [p^2 < 1, q > 1]$ (IV, 255).

7) $\int l(1+x) \frac{x\, lx - x - q}{(x+q)^2} \frac{dx}{x} = \frac{1}{2(q-1)} (lq)^2$ V. T. 140, N. 8.

8) $\int l(1-x)^2 \frac{x\, lx - x - q}{(x+q)^2} \frac{dx}{x} = \frac{-1}{1+q} \{\pi^2 + (lq)^2\}$ V. T. 140, N. 10.

9) $\int l(1+x^2) \frac{dx}{x(1+x^2)} = \frac{1}{12}\pi^2$ (VIII, 291).

10) $\int l(1+p^2x^2) \frac{1}{q^2 + r^2x^2} \frac{dx}{s^2 + t^2x^2} = \frac{\pi}{q^2t^2 - s^2r^2} \left\{\frac{t}{s} l\left(1 + \frac{ps}{t}\right) - \frac{r}{q} l\left(1 + \frac{pq}{r}\right)\right\}$ (VIII, 331).

11) $\int l(1+p^2x^2) \frac{x^2}{q^2 + r^2x^2} \frac{dx}{s^2 + t^2x^2} = \frac{\pi}{q^2t^2 - s^2r^2} \left\{\frac{q}{r} l\left(1 + \frac{pq}{r}\right) - \frac{s}{t} l\left(1 + \frac{ps}{t}\right)\right\}$ (VIII, 331).

12) $\int l\left(\frac{q^2 + x^2}{x^2}\right) \frac{(r - xi)^{-p} + (r + xi)^{-p}}{2} dx = \frac{\pi}{p-1} \left\{\left(\frac{1}{r}\right)^{p-1} - \left(\frac{1}{q+r}\right)^{p-1}\right\}$ (VIII, 581).

13) $\int l\left(\frac{1+x}{1-x}\right)^2 \frac{dx}{x(1+x^2)} = \frac{1}{2}\pi^2$ (VIII, 286).

F. Alg. irrat. fract.;
Log. en num.

TABLE 142.

Lim. 0 et ∞.

1) $\int lx \frac{1-x}{(1+x)^2} \frac{dx}{\sqrt{x}} = -2\pi$ V. T. 139, N. 11.

2) $\int lx \frac{1+x}{(1-x)^2} \frac{dx}{\sqrt{x}} = 0$ V. T. 139, N. 19.

3) $\int lx \frac{dx}{\sqrt{(1+x^2)\{1+(1-p^2)x^2\}}} = -\frac{1}{2} F'(p) . l(1-p^2)$ $[p^2 < 1]$ V. T. 322, N. 11.

4) $\int lx \frac{dx}{\sqrt{(1+x^2)\{x^2+(1-p^2)\}}} = \frac{1}{2} F'(p) . l(1-p^2)$ $[p^2 < 1]$ V. T. 322, N. 11.

5) $\int lx \frac{dx}{(q+x)^{b+\frac{1}{2}}} = \frac{2}{(2b-1)q^{b-\frac{1}{2}}} \left\{ lq + 2\,l2 - \sum_{1}^{b-1} \frac{1}{n} - 2 \sum_{b-1}^{2b-2} \frac{1}{n} \right\}$ (IV, 257).

6) $\int lx \frac{dx}{(1-x^2)^{\frac{1}{2}-a}} = -\frac{1^{a/2}}{2^{a+1}1^{a/1}} \frac{\pi}{2} \left\{ A + 2\,l2 + Z'(a+1) \right\}$ V. T. 306, N. 8.

7) $\int l(1+x) \frac{dx}{x\sqrt{x}} = 2\pi$ V. T. 134, N. 12.

8) $\int l(1+x) \frac{dx}{x^{p+\frac{1}{2}}} = \frac{2}{2p+1} \pi \, Sec\, p\pi \left(p^2 < \frac{1}{4}\right)$ V. T. 134, N. 12.

9) $\int l(1-x)^2 \frac{dx}{x\sqrt{x}} = 0$ V. T. 134, N. 13.

10) $\int l\left(\frac{1 - Cothp^2\lambda + x^2}{1 + Cothp^2\lambda + x^2}\right) \frac{x}{1+(1-Coshp^2\lambda)x^2} \frac{dx}{\sqrt{1+x^2}} = \frac{2\lambda\, l\, Sinhp\lambda}{Sinhp\lambda . Coshp}$. V. T. 318, N. 7.

11) $\int l\left(\frac{\sqrt{1+x^2}+p}{\sqrt{1+x^2}-p}\right) \frac{dx}{\sqrt{1+x^2}} = \pi \, Arcsin\, p$ (VIII 291).

12) $\int l(p+\sqrt{x}) \frac{dx}{(q+x)^2} = \frac{1}{2(p^2+q)} \left\{ lq + \frac{p\pi}{\sqrt{q}} + \frac{2p^2}{q} lp \right\}$ V. T. 139, N. 9.

13) $\int l(p-\sqrt{x})^2 \frac{dx}{(q+x)^2} = \frac{1}{p^2+q} \left\{ lq - \frac{p\pi}{\sqrt{q}} + \frac{2p^2}{q} lp \right\}$ V. T. 139, N. 10.

F. Algébrique;
Logar. en dén.

TABLE 143.

Lim. 0 et ∞.

1) $\int \frac{x^{p-1} - x^{q-1}}{1+x^{2q}} \frac{dx}{lx} = l\, Tg \frac{p\pi}{4q}$ V. T. 143, N. 2.

2) $\int \frac{x^{p-1} - x^{q-1}}{1+x^r} \frac{dx}{lx} = l\left(Tg \frac{p\pi}{2r} . Cot \frac{q\pi}{2r}\right)$ (VIII, 486).

3) $\int \frac{x^{p-1} - x^{q-1}}{1 - x^{2q}} \frac{dx}{lx} = l\,Sin \frac{p\pi}{2q}$ V. T. 143, N. 4.

4) $\int \frac{x^{p-1} - x^{q-1}}{1 - x^r} \frac{dx}{lx} = l\left(Sin \frac{p\pi}{r} . Cosec \frac{q\pi}{r}\right)$ (VIII, 485).

5) $\int \frac{x^{p-1} - x^{q-1}}{1 + x^{2(2a+1)}} \frac{1 + x^2}{lx} dx = l\left[Tg\left\{\frac{p\pi}{4(2a+1)}\right\} . Tg\left\{\frac{p+2}{2a+1} \frac{\pi}{4}\right\} . Cot\left\{\frac{q\pi}{4(2a+1)}\right\} . Cot\left\{\frac{q+2}{2a+1} \frac{\pi}{4}\right\}\right]$

6) $\int \frac{x^{p-1} - x^{q-1}}{1 - x^{2a}} \frac{1 - x^2}{lx} dx = l\left\{Sin \frac{p\pi}{2a} . Sin\left(\frac{q+2}{2a}\pi\right) . Cosec \frac{q\pi}{2a} . Cosec\left(\frac{p+2}{2a}\pi\right)\right\}$

Sur 5) et 6) voyez Lindmann, Gr. 35, 475.

7) $\int \left\{\frac{(q-1)x}{(1+x)^2} - \frac{1}{1+x} + \frac{1}{(1+x)^q}\right\} \frac{dx}{x\,l(1+x)} = l\Gamma(q)$ (VIII, 586).

8) $\int l(1+x^q) \left\{\frac{(p-q)x^p + \frac{1}{2}q x^{\frac{1}{2}q}}{lx} + \frac{x^{\frac{1}{2}q} - x^p}{(lx)^2}\right\} \frac{dx}{x^{q+1}} = q\,l\,Cot \frac{p\pi}{2q}$ V. T. 148, N. 1.

9) $\int l(1+x^r) . \left\{\frac{(p-r)x^p - (q-r)x^q}{lx} + \frac{x^q - x^p}{(lx)^2}\right\} \frac{dx}{x^{r+1}} = r\,l\left(Tg \frac{q\pi}{2r} . Cot \frac{p\pi}{2r}\right)$ V. T. 148, N. 2.

10) $\int l(1-x^r)^2 . \left\{\frac{(p-r)x^p - (q-r)x^q}{lx} + \frac{x^q - x^p}{(lx)^2}\right\} \frac{dx}{x^{r+1}} = 2r\,l\left(Sin \frac{p\pi}{r} . Cosec \frac{q\pi}{r}\right)$ V. T. 148, N. 4.

F. Algébrique; Logarithmique. | TABLE 144. | Lim. 1 et ∞.

1) $\int (lx)^p \frac{dx}{x^2} = \Gamma(1+p)$ V. T. 30, N. 2.

2) $\int lx \frac{dx}{1+x^2} = \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 108, N. 10.

3) $\int l(1+x) \frac{dx}{1+x^2} = \frac{\pi}{8} l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ (VIII, 534).

4) $\int l(1-x)^2 \frac{dx}{1+x^2} = \frac{\pi}{4} l2$ V. T. 115, N. 5.

5) $\int l(1+x^2) \frac{dx}{1+x^2} = \frac{\pi}{2} l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 115, N. 8.

6) $\int l(1-x^2)^2 \frac{dx}{1+x^2} = \frac{\pi}{2} l2 + 2\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 115, N. 10.

7) $\int l(1-x^4)^2 \frac{dx}{1+x^2} = \frac{3\pi}{2} l2 + 4 \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 115, N. 14.

8) $\int l\left(\frac{1+x^2}{1+x}\right) \frac{dx}{1+x^2} = \frac{3\pi}{8} l2$ V. T. 115, N. 18 et T. 144, N. 1.

9) $\int l\left(\frac{1+x^2}{1-x}\right)^2 \frac{dx}{1+x^2} = \frac{3\pi}{4} l2 + 2 \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 115, N. 19 et T. 144, N. 1.

10) $\int \frac{dx}{x^{p+1}\sqrt{lx}} = \sqrt{\frac{\pi}{p}}$ V. T. 133, N. 1.

11) $\int \frac{1}{q+lx} \frac{dx}{x^{p+1}} = -e^{pq} Ei(-pq)$ V. T. 91, N. 1.

12) $\int \frac{1}{q-lx} \frac{dx}{x^{p+1}} = e^{-pq} Ei(pq)$ V. T. 91, N. 4.

13) $\int \frac{1}{q^2+(lx)^2} \frac{dx}{x^{p+1}} = \frac{1}{q}\left\{Ci(pq).Sin pq - Si(pq).Cos pq + \frac{1}{2}\pi Cos pq\right\}$ V. T. 91, N. 7.

14) $\int \frac{lx}{q^2+(lx)^2} \frac{dx}{x^{p+1}} = -Ci(pq).Cos pq - Si(pq).Sin pq + \frac{1}{2}\pi Sin pq$ V. T. 91, N. 8.

15) $\int \frac{1}{q^2-(lx)^2} \frac{dx}{x^{p+1}} = \frac{1}{2q}\{e^{-pq} Ei(pq) - e^{pq} Ei(-pq)\}$ V. T. 91, N. 14.

16) $\int \frac{lx}{q^2-(lx)^2} \frac{dx}{x^{p+1}} = \frac{1}{2}\{e^{-pq} Ei(pq) + e^{pq} Ei(-pq)\}$ V. T. 91, N. 15.

17) $\int lx \frac{dx}{x^2\sqrt{x^2-1}} = 1 - l2$ V. T. 118, N. 4.

F. Algébrique; Logarithmique. TABLE 145. Lim. diverses.

1) $\int_0^{\sqrt{\frac{1}{2}}} \frac{lx.dx}{\sqrt{1-x^2}} = -\frac{1}{4}\pi l2 + \frac{1}{2}\sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 254, N. 11.

2) $\int_0^{\frac{1}{2}} l(1-x)\frac{dx}{x} = \frac{1}{2}(l2)^2 - \frac{1}{12}\pi^2$ (VIII, 268).

3) $\int_0^2 l(1-x)\frac{dx}{x} = -\frac{1}{4}\pi^2 + \pi i l2$ (VIII, 269).

4) $\int_0^{\frac{1}{e}} \frac{dx\sqrt[4]{x}}{x\sqrt{-(1+lx)}} = \frac{\sqrt{q\pi}}{\sqrt[q]{e}}$ V. T. 104, N. 11.

5) $\int_0^{\frac{1}{e}} l\left(2l\frac{1}{x}-1\right)\frac{x^{2q-1}\,dx}{lx} = -\frac{1}{2}\{Ei(-q)\}^2$ V. T. 359, N. 1.

6) $\int_0^{\frac{1}{2}(-1+\sqrt{5})} l(1-x)\frac{dx}{x} = -\frac{1}{10}\pi^2 + \frac{1}{5}\left\{l\left(\frac{1+\sqrt{5}}{2}\right)\right\}^2 + \frac{2}{5}l\left(\frac{-1+\sqrt{5}}{2}\right).l\left(\frac{3-\sqrt{5}}{2}\right)$ (IV, 260).

7) $\int_0^{\frac{1}{2}(3-\sqrt{5})} l(1-x)\frac{dx}{x} = -\frac{1}{15}\pi^2 - \frac{1}{5}\left\{l\left(\frac{1+\sqrt{5}}{2}\right)\right\}^2 + \frac{3}{5}l\left(\frac{1+\sqrt{5}}{2}\right).l\left(\frac{3-\sqrt{5}}{2}\right)$ (IV, 260).

8) $\int_0^{\frac{1}{2}(1-\sqrt{5})} l(1-x)\frac{dx}{x} = \frac{1}{15}\pi^2 - \frac{3}{10}\left\{l\left(\frac{1+\sqrt{5}}{2}\right)\right\}^2 + \frac{2}{5}l\left(\frac{-1+\sqrt{5}}{2}\right).l\left(\frac{3-\sqrt{5}}{2}\right) +$

$+ l\left(\frac{-1+\sqrt{5}}{2}\right).l\left(\frac{1+\sqrt{5}}{2}\right)$ (IV, 260).

9) $\int_0^{\frac{1}{2}(1+\sqrt{5})} l(1-x)\frac{dx}{x} = -\frac{7}{30}\pi^2 + \frac{3}{10}\left\{l\left(\frac{1+\sqrt{5}}{2}\right)\right\}^2 - \frac{2}{5}l\left(\frac{-1+\sqrt{5}}{2}\right).l\left(\frac{3-\sqrt{5}}{2}\right) +$

$+ \pi i\, l\left(\frac{1+\sqrt{5}}{2}\right)$ (IV, 260).

10) $\int_0^{-\frac{1}{2}(1+\sqrt{5})} l(1-x)\frac{dx}{x} = \frac{1}{10}\pi^2 + \frac{4}{5}\left\{l\left(\frac{1+\sqrt{5}}{2}\right)\right\}^2 - \frac{2}{5}l\left(\frac{-1+\sqrt{5}}{2}\right).l\left(\frac{3-\sqrt{5}}{2}\right) -$

$+ l\left(\frac{-1+\sqrt{5}}{2}\right).l\left(\frac{1+\sqrt{5}}{2}\right)$ (IV, 260).

11) $\int_0^{\frac{1}{2}(3+\sqrt{5})} l(1-x)\frac{dx}{x} = -\frac{4}{15}\pi^2 + \frac{1}{2}\left\{l\left(\frac{3+\sqrt{5}}{2}\right)\right\}^2 + \frac{1}{5}\left\{l\left(\frac{1+\sqrt{5}}{2}\right)\right\}^2 - \frac{3}{5}l\left(\frac{-1+\sqrt{5}}{2}\right).$

$l\left(\frac{3-\sqrt{5}}{2}\right) - \pi i\, l\left(\frac{3+\sqrt{5}}{2}\right)$ (IV, 260).

12) $\int_0^{2a} l\{x(x-a)\}\frac{dx}{1-2ax+x^2} = (Arcsin\, a)^2$ Newmann, C. & D. M. J. 2, 172.

13) $\int_1^{\sqrt{\frac{1}{2}}} l(1-x^2)^2\frac{dx}{\sqrt{1-x^2}} = \pi l2 + 2\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 254, N. 13.

14) $\int_1^{\frac{1}{e}}\frac{lx}{(1-lx)^2}\frac{dx}{x^2} = \frac{1}{2}e - 1$ V. T. 80, N. 6.

15) $\int_{-1}^1\frac{l(1-x^2)}{p+qx}\frac{dx}{\sqrt{1-x^2}} = \frac{2\pi}{\sqrt{p^2-q^2}}\, l\,\frac{\sqrt{p^2-q^2}}{p+\sqrt{p^2-q^2}}$ (VIII, 549).

16) $\int_{-1}^1 l(1+px)^2\frac{dx}{\sqrt{1-x^2}} = 2\pi l\frac{1+\sqrt{1-p^2}}{2}\ [p^2<1],\ = -2\pi l2p\ [p^2>1]$ (VIII, 550).

17) $\int_{-1}^1 l(1-px)^2\frac{dx}{\sqrt{1-x^2}} = 2\pi l\frac{1+\sqrt{1-p^2}}{2}\ [p^2<1],\ = -2\pi l2p\ [p^2>1]$ (VIII, 550).

18) $\int_{-1}^1 l(p+x)^2\frac{dx}{\sqrt{1-x^2}} = -2\pi l2\ [p^2<1],\ = 2\pi l\frac{p+\sqrt{p^2-1}}{2}\ [p^2>1]$ (VIII, 550).

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19) $\int_{-1}^{1} l(p-x)^2 \frac{dx}{\sqrt{1-x^2}} = -2\pi l 2 \; [p^2<1], = 2\pi l \frac{p+\sqrt{p^2-1}}{2} \; [p^2>1]$ (VIII, 550).

20) $\int_{-1}^{1} l(1+px) \frac{dx}{x\sqrt{1-x^2}} = Arcsin\, p = \pi = $ 21) $\int_{-1}^{1} l\left(\frac{1}{1-px}\right) \frac{dx}{x\sqrt{1-x^2}} \; [p^2<1]$ (VIII, 550).

22) $\int_{-1}^{1} l(px-q) \frac{x}{1-rx^2} \frac{dx}{\sqrt{1-x^2}} = \frac{\pi}{\sqrt{r(1-r)}} l \frac{p\sqrt{r}-\{1-\sqrt{1-r}\}\{q+\sqrt{q^2-p^2}\}}{p\sqrt{r}+\{1-\sqrt{1-r}\}\{q+\sqrt{q^2-p^2}\}}$ (IV, 261).

23) $\int_{-1}^{1} l\left(\frac{1-x^a}{1-x}\right) \frac{x\,dx}{\sqrt{1-x^2}} = \pi - 2\pi \sum_{1}^{\frac{1}{2}(a-1)} Cos\left(\frac{1}{4}\pi - \frac{2n+1}{a}\pi\right) . \sqrt{2\, Sin\left(\frac{2n+1}{a}\pi\right)}$ (IV, 261).

24) $\int_{-1}^{1} l\left(\frac{1-x^a}{1-x}\right) \frac{x}{1-x^2 Sin^2\lambda} \frac{dx}{\sqrt{1-x^2}} = 2\pi\, Cosec\,\lambda . \sum_{1}^{\frac{1}{2}(a-1)} l \frac{1-2g\, Tg\frac{1}{2}\lambda + h\, Tg^2 \frac{1}{2}\lambda}{1+2g\, Tg\frac{1}{2}\lambda + h\, Tg^2\frac{1}{2}\lambda}$

$\left[\begin{array}{l} g = Cos\left(\frac{2n+1}{a}\pi\right) + Cos\left(\frac{1}{4}\pi + \frac{2n+1}{2a}\pi\right) . \sqrt{2\, Sin\left(\frac{2n+1}{a}\pi\right)} \\ h = 1 + 2\, Sin\left(\frac{2n+1}{a}\pi\right) + 2\, Sin\left(\frac{1}{4}\pi + \frac{2n+1}{2a}\pi\right) . \sqrt{2\, Sin\left(\frac{2n+1}{a}\pi\right)} \end{array}\right]$ (IV, 261).

25) $\int_{-\infty}^{\infty} l\left(1+\frac{pi}{x}\right) \frac{dx}{q+xi} = 2\pi l \frac{p+q}{q}$ (IV, 261).

26) $\int_{-\infty}^{\infty} l\left(1+\frac{pi}{x}\right) \frac{dx}{q-xi} = 0$ (IV, 261).

27) $\int_{-\infty}^{\infty} l\left(1+\frac{pi}{x}\right) . (-xi)^{q-1} \frac{dx}{r^2+x^2} = \pi r^{q-1} l \frac{p+r}{r}$

28) $\int_{-\infty}^{\infty} l(p^2 - 2px\, Cos\,\lambda + x^2) \frac{dx}{1+x^2} = \pi l(1+2p\, Sin\,\lambda + p^2)$

} Cauchy, Ann. Math. 17, 84.

29) $\int_{p}^{\infty} lx \frac{dx}{(1+x^2)^2} = l\frac{1+p}{p} + \frac{1}{1+p} lp$ (VIII, 590).

30) $\int_{p}^{\infty} l(1+x) \frac{dx}{x^2} = \frac{1}{p} l(1+p) + l\frac{1+p}{p}$ (VIII, 590).

31) $\int_{-q}^{q} l(x-r) \frac{x}{q^2-px^2} \frac{dx}{\sqrt{q^2-x^2}} = \frac{\pi q}{\sqrt{p(1-p)}} l \frac{q\sqrt{p}-\{1-\sqrt{1-p}\}\{r+\sqrt{r^2-q^2}\}}{q\sqrt{p}+\{1-\sqrt{1-p}\}\{r+\sqrt{r^2-q^2}\}}$ (IV, 262.

32) $\int_{p}^{q} \frac{lx . dx}{(x+p)(x+q)} = \frac{1}{2(q-p)} l(pq) . l\left\{\frac{(p+q)^2}{4pq}\right\}$

33) $\int_{p}^{q} l\left(\frac{q+x}{p+x}\right) \frac{dx}{x} = \frac{1}{2}\left(l\frac{q}{p}\right)^2$

} Winckler, Sitz. Ber. Wien. B. 43. 315.

34) $\int_p^q lx \frac{dx}{\sqrt{(x^2-p^2)(q^2-x^2)}} = \frac{1}{2q} lpq . F'\left(\sqrt{\frac{q^2-p^2}{q^2}}\right)$ (VIII, 300).

35) $\int_p^q l\left(\frac{1+rx}{1-rx}\right) \frac{dx}{\sqrt{(x^2-p^2)(q^2-x^2)}} = \frac{\pi}{q} F\left\{\frac{p}{q}, Arcsin\, rp\right\} [r<1]$ (VIII, 311).

36) $\int_p^q \left(l\frac{x}{p}\right)^{r-1} \left(l\frac{q}{x}\right)^{s-1} \frac{dx}{x} = \frac{\Gamma(r)\Gamma(s)}{\Gamma(r+s-1)} \left(l\frac{q}{p}\right)^{r+s-1}$

37) $\int_p^q \frac{dx}{x\sqrt{\left(l\frac{x}{p}.l\frac{q}{x}\right)}} = \pi$

Winckler, Sitz. Ber. Wien. B. 44, 477. (36, 37)

F. Algébr.; Logar. — Intégr. Lim. [Lim. $k=\infty$]. TABLE 146. Lim. diverses.

1) $\int_0^1 \frac{x^k}{1+2x\, Cos\, \lambda + x^2} (lx)^{p-1}\, dx = 0$ (VIII, 319).

2) $\int_0^1 \left\{\frac{x^{k-1}}{lx} + \frac{x^{p+k}}{1-x}\right\} dx = 0$ (VIII, 318).

F. Algébrique; Log. de Log. — TABLE 147. — Lim. 0 et 1.

1) $\int ll\frac{1}{x}.x^{q-1}\,dx = -\frac{1}{q}(A+lq)$ V. T. 256, N. 2.

2) $\int ll\frac{1}{x}.\left(l\frac{1}{x}\right)^{p-1}.x^{q-1}\,dx = \frac{1}{q^p}\Gamma(p)\{Z'(p)-lq\}$ V. T. 353, N. 1.

3) $\int ll\frac{1}{x}.x^{q-1}\frac{dx}{\sqrt{l\frac{1}{x}}} = -(A+2l2+lq)\sqrt{\frac{\pi}{q}}$ V. T. 256, N. 8.

4) $\int ll\frac{1}{x}\frac{1}{1+x^2}\frac{dx}{\sqrt{l\frac{1}{x}}} = \sqrt{\pi}.\sum_0^\infty \frac{(-1)^{n+1}}{\sqrt{2n+1}}\{l(2n+1)+2l2+A\}$ V. T. 357, N. 12.

5) $\int ll\frac{1}{x}\frac{x^p+x^{-p}}{1+x^2}dx = \frac{1}{2}\pi Sec\frac{1}{2}p\pi.(l\pi-A) - \sum_0^\infty (-1)^n \left\{\frac{l\{(2n+1-p)\pi\}}{2n+1-p} + \frac{l\{(2n+1+p)\pi\}}{2n+1+p}\right\}$
V. T. 257, N. 1.

6) $\int ll\frac{1}{x}\frac{x^p-x^{-p}}{1-x^2}dx = \frac{1}{2}\pi\, Tg\frac{1}{2}p\pi.(A-l\pi) + \sum_0^\infty \left\{\frac{l\{(2n+1-p)\pi\}}{2n+1-p} - \frac{l\{(2n+1+p)\pi\}}{2n+1+p}\right\}$
V. T. 257, N. 3.

7) $\int l l \frac{1}{x} \frac{dx}{(1+x)^2} = \frac{1}{2}\left\{Z'\left(\frac{1}{2}\right) + l 2\pi\right\}$ (IV, 263).

8) $\int l l \frac{1}{x} \frac{1}{1+x+x^2} \frac{dx}{\sqrt{l\frac{1}{x}}} = Cosec \frac{1}{3}\pi . \sqrt{\pi} . \sum_1^\infty \frac{(-1)^n}{\sqrt{n}} Sin \frac{1}{3} n\pi . \{l 4n + A\}$ V. T. 357, N. 13.

9) $\int l l \frac{1}{x} \frac{dx}{1+2x Cos \lambda + x^2} = \frac{1}{2}\pi Cosec \lambda . l \frac{(2\pi)^{\frac{\lambda}{\pi}} \Gamma\left(\frac{1}{2} + \frac{\lambda}{2\pi}\right)}{\Gamma\left(\frac{1}{2} - \frac{\lambda}{2\pi}\right)}$ (IV, 263).

10) $\int l\{q^2 + (lx)^2\} \frac{dx}{1+x^2} = \pi l \frac{2\Gamma\left(\frac{2q+3\pi}{4\pi}\right)}{\Gamma\left(\frac{2q+\pi}{4\pi}\right)} + \frac{1}{2}\pi l \frac{\pi}{2}$ V. T. 258, N. 11.

11) $\int l\{q^2 + (lx)^2\} \frac{x^{\frac{b}{a}} + x^{-\frac{b}{a}}}{1+x^2} dx = \pi Sec \frac{b\pi}{2a} . l 2a\pi + 2\pi \sum_1^a (-1)^{n-1} Cos\left\{\left(n - \frac{1}{2}\right)\frac{b\pi}{a}\right\} . l \frac{\Gamma\left\{\frac{2q+2\pi n-\pi}{4a\pi} + \frac{1}{2}\right\}}{\Gamma\left\{\frac{2q+2\pi n-\pi}{4a\pi}\right\}} \left[\begin{matrix}a+b\\ \text{impair}\end{matrix}\right], = \pi Sec \frac{b\pi}{2a} . l a\pi + 2\pi \sum_1^{\frac{1}{2}(a-1)} (-1)^{n-1} Cos\left\{\left(n - \frac{1}{2}\right)\frac{b\pi}{a}\right\} . l \frac{\Gamma\left\{\frac{2q-2\pi n+\pi}{2a\pi} + 1\right\}}{\Gamma\left\{\frac{2q+2\pi n-\pi}{2a\pi}\right\}} \left[\begin{matrix}a+b\\ \text{pair}\end{matrix}\right]$ V. T. 258, N. 7.

12) $\int l\left\{\frac{1}{4}\pi^2 a^2 + (lx)^2\right\} \frac{x^{-\frac{b}{a}} + x^{\frac{b}{a}}}{1+x^2} dx = \pi Sec \frac{b\pi}{2a} . l\pi + \pi \sum_1^a (-1)^{n-1} Cos\left\{\left(n - \frac{1}{2}\right)\frac{b\pi}{a}\right\} . l\left\{\left(\frac{a+1}{2} - n\right) Cot\left(\frac{\pi}{4} - \frac{2n-1}{4a}\pi\right)\right\} \left[\begin{matrix}a+b\\ \text{impair}\end{matrix}\right]$ V. T. 258, N. 9.

13) $\int l\left\{\frac{1}{4}\pi^2 + (lx)^2\right\} \frac{dx}{1+x^2} = \frac{1}{2}\pi l 2$ V. T. 258, N. 1.

14) $\int l\{q^2 + (lx)^2\} \frac{x^{-\frac{b}{a}} - x^{\frac{b}{a}}}{1-x^2} dx = \pi Tg \frac{b\pi}{2a} . l 2a\pi + 2\pi \sum_1^{a-1} (-1)^{n-1} Sin \frac{nb\pi}{a} . l \frac{\Gamma\left(\frac{q+n\pi}{2a\pi} + \frac{1}{2}\right)}{\Gamma\left(\frac{q+n\pi}{2a\pi}\right)} \left[\begin{matrix}a+b\\ \text{impair}\end{matrix}\right], = \pi Tg \frac{b\pi}{2a} . l a\pi + 2\pi \sum_1^{\frac{1}{2}(a-1)} (-1)^{n-1} Sin \frac{nb\pi}{a} . l \frac{\Gamma\left(\frac{q-n\pi}{a\pi} + 1\right)}{\Gamma\left(\frac{q+n\pi}{a\pi}\right)} \left[\begin{matrix}a+b\\ \text{pair}\end{matrix}\right]$ V. T. 258, N. 8.

15) $\int l\left\{\frac{1}{4}\pi^2a^2+(lx)^2\right\}\frac{x^{-\frac{b}{a}}-x^{\frac{b}{a}}}{1-x^2}\,dx=\pi\,Tg\frac{b\pi}{2a}.l\pi+\pi\sum_1^{a-1}(-1)^{n-1}\,Sin\frac{nb\pi}{a}.l\left\{\left(\frac{1}{2}a-n\right)\right.$

$\left.Cot\left(\frac{\pi}{4}-\frac{n\pi}{2a}\right)\right\}\left[\begin{matrix}b+a\\ \text{impair}\end{matrix}\right]$ V. T. 258, N. 10.

16) $\int l\{q^2+(lx)^2\}\frac{dx}{(1+x)\sqrt{x}}=2\pi\,l\frac{2\Gamma\left(\frac{q+3\pi}{4\pi}\right)}{\Gamma\left(\frac{q+\pi}{4\pi}\right)}+\pi\,l\pi$ V. T. 258, N. 11.

17) $\int l\{q^2+(lx)^2\}\frac{1+x^{\frac{1}{3}}}{1+x^{\frac{1}{3}}+x^{\frac{2}{3}}}\frac{dx}{\sqrt[3]{x^2}}=-\pi\,l\pi-2\pi\,Sin\frac{\pi}{3}.l\frac{6\Gamma\left(\frac{q+4\pi}{6\pi}\right)\Gamma\left(\frac{q+5\pi}{6\pi}\right)}{\Gamma\left(\frac{q+\pi}{6\pi}\right)\Gamma\left(\frac{q+2\pi}{6\pi}\right)}$

V. T. 258, N. 12.

18) $\int\left\{(p-1)x-\frac{(1-lx)^{-1}-(1-lx)^{-p}}{l(1-lx)}\right\}\frac{dx}{x\,lx}=-l\Gamma(p)$ V. T. 354, N. 16.

19) $\int\left\{\frac{x}{lx}+\frac{1}{(1-lx)^2\,l(1-lx)}\right\}\frac{dx}{x}=0$ V. T. 354, N. 14.

20) $\int\left\{x-\frac{(1-lx)^{-(p+1)}}{l(1-lx)}\right\}\frac{dx}{x\,lx}=-lp$ V. T. 354, N. 13.

F. Algébrique;
Log. de Log. **TABLE 148.** Lim. 0 ou 1 et ∞.

1) $\int_0^\infty llx\frac{dx}{1+x^2}=\frac{1}{2}\pi\,l\left(\frac{\Gamma(\frac{3}{4})}{\Gamma(\frac{1}{4})}\sqrt{2\pi}\right)$ (IV, 264).

2) $\int_0^\infty llx\frac{dx}{1+x+x^2}=\frac{\pi}{\sqrt{3}}\,l\left(\frac{\Gamma(\frac{2}{3})}{\Gamma(\frac{1}{3})}\sqrt[3]{2\pi}\right)$ (IV, 265).

3) $\int_0^\infty llx\frac{x^{a-1}-x^{-a-1}}{x^b-x^{-b}}\,dx=\frac{\pi}{2b}Tg\frac{a\pi}{2b}.l2\pi+\frac{\pi}{b}\sum_1^{b-1}(-1)^{n-1}\,Sin\frac{na\pi}{b}.l\frac{\Gamma\left(\frac{b+n}{2b}\right)}{\Gamma\left(\frac{n}{2b}\right)}\left[\begin{matrix}a+b\\ \text{impair}\end{matrix}\right],=$

$=\frac{\pi}{2b}Tg\frac{a\pi}{2b}.l\pi+\frac{\pi}{b}\sum_1^{\frac{1}{2}(b-1)}(-1)^{n-1}\,Sin\frac{na\pi}{b}.l\frac{\Gamma\left(\frac{b-n}{b}\right)}{\Gamma\left(\frac{n}{b}\right)}\left[\begin{matrix}a+b\\ \text{pair}\end{matrix}\right]$ (IV, 265).

4) $\int_0^\infty ll x \frac{x^{a-2}\,dx}{1+x^2+x^4+\ldots+x^{2a-2}} = \frac{\pi}{2a} Tg \frac{\pi}{2a}.l2\pi + \frac{\pi}{a}\sum_1^{a-1}(-1)^{n-1} Sin\frac{n\pi}{a}.l\frac{\Gamma\left(\frac{a+n}{2a}\right)}{\Gamma\left(\frac{n}{2a}\right)}\left[\begin{matrix}a\\ \text{pair}\end{matrix}\right], =$

$= \frac{\pi}{2a} Tg\frac{\pi}{2a}.l\pi + \frac{\pi}{a}\sum_1^{\frac{1}{2}(a-1)}(-1)^{n-1} Sin\frac{n\pi}{a}.l\frac{\Gamma\left(\frac{a-n}{a}\right)}{\Gamma\left(\frac{n}{a}\right)}\left[\begin{matrix}a\\ \text{impair}\end{matrix}\right]$ (IV, 265).

5) $\int_1^\infty ll x \frac{dx}{1-x+x^2} = \frac{2\pi}{\sqrt{3}}\left\{\frac{5}{6}l2\pi - l\Gamma\left(\frac{1}{6}\right)\right\}$ (IV, 265).

6) $\int_1^\infty ll x \frac{x^{a-1}+x^{-a-1}}{x^b+x^{-b}}dx = \frac{\pi}{2b} Sec\frac{a\pi}{2b}.l2\pi + \frac{\pi}{b}\sum_1^b(-1)^{n-1} Cos\left\{\left(n-\frac{1}{2}\right)\frac{a\pi}{b}\right\}.l\frac{\Gamma\left(\frac{2b+2n-1}{4b}\right)}{\Gamma\left(\frac{2n-1}{4b}\right)}\left[\begin{matrix}a+b\\ \text{impair}\end{matrix}\right], =$

$= \frac{\pi}{2b} Sec\frac{a\pi}{2b}.l\pi + \frac{\pi}{b}\sum_1^{\frac{1}{2}(b-1)}(-1)^{n-1} Cos\left\{\left(n-\frac{1}{2}\right)\frac{a\pi}{b}\right\}.l\frac{\Gamma\left(\frac{2b-2n+1}{2b}\right)}{\Gamma\left(\frac{2n-1}{2b}\right)}\left[\begin{matrix}a+b\\ \text{pair}\end{matrix}\right]$ (IV, 265).

1) $\int x\, Sin px\, dx = \frac{1}{p^2}(Sin p - p\, Cos p)$ (VIII, 363).

2) $\int Cos 2px.(1-x^2)^{q-1}dx = \frac{\Gamma(q)}{2\Gamma(q+\frac{1}{2})}\sqrt{\pi}.\sum_0^\infty(-1)^n\frac{p^{2n}}{1^{n/1}(q+\frac{1}{2})^{n/1}}$ (VIII, 514).

3) $\int Cos rx.(1-x^2)^{q-p-1}x^{2p-1}dx = \frac{\Gamma(p)\Gamma(q-p)}{2\Gamma(q)}\sum_0^\infty(-1)^n\frac{p^{n/1}}{1^{2n/1}q^{n/1}}r^{2n}$ (IV, 266).

4) $\int Cos(\sqrt{rx}).(1-x)^{q-p-1}x^{p-1}dx = \frac{\Gamma(p)\Gamma(q-p)}{\Gamma(q)}\sum_0^\infty(-r)^n\frac{p^{n/1}}{1^{2n/1}q^{n/1}}$ V. T. 149, N. 3.

5) $\int Sin px\frac{dx}{x} = Si(p) = \sum_1^\infty\frac{1}{2n-1}\frac{p^{2n-1}}{1^{2n-1/1}}$ (IV, 266).

6) $\int Sin 2px.dx\sqrt{1-x^2} = \sum_0^\infty\frac{(2p)^{2n+1}}{(3^{n/2})^2}\frac{(-1)^n}{2n+3}$ (VIII, 515).

7) $\int Cos 2px.dx\sqrt{1-x^2} = \frac{\pi}{2}\sum_0^\infty\frac{p^{2n}}{(1^{n/1})^2}\frac{(-1)^n}{n+1}$ (VIII, 515).

8) $\int Cos 2px.(1-x^2)^{a-\frac{1}{2}}dx = \frac{1^{a/2}}{2^{a+1}1^{a/1}}\left\{1+\sum_1^\infty(-1)^n\frac{p^{2n}}{1^{n/1}(a+1)^{n/1}}\right\}$ (IV, 266).

9) $\int Sin 2px \frac{dx}{\sqrt{1-x^2}} = \sum_0^\infty (-1)^n \frac{(2p)^{2n+1}}{(3^{n/2})^2}$ (VIII, 516).

10) $\int Cos 2px \frac{dx}{\sqrt{1-x^2}} = \frac{\pi}{2} \sum_0^\infty (-1)^n \frac{p^{2n}}{(1^{n/1})^2}$ (VIII, 516).

11) $\int \left\{ Cos qx - Cos \frac{q}{x} \right\} \frac{dx}{1-x^2} = \frac{1}{2} \pi Sin q$ (VIII, 687).

12) $\int \left\{ \frac{x Cos qx}{1-x^2} + r \frac{Cos \frac{q}{x^r}}{x^r - x^{-r}} \right\} \frac{dx}{x} = \frac{1}{2} \pi (Sin q - Cos q . lr)$ (IV, 266).

13) $\int Sin \left\{ p \left(x^2 - \frac{1}{x^2} \right) \right\} . \left(x - \frac{1}{x} \right) \frac{dx}{x} = -\frac{1}{2} e^{-2p} \sqrt{\frac{\pi}{2p}}$ V. T. 149, N. 18, 19.

14) $\int Cos \left\{ p \left(x^2 - \frac{1}{x^2} \right) \right\} . \left(x + \frac{1}{x} \right) \frac{dx}{x} = -\frac{1}{2} e^{-2p} \sqrt{\frac{\pi}{2p}}$ V. T. 149, N. 18, 19.

15) $\int Sin \left\{ \frac{1}{2} p \left(x + \frac{1}{x} \right) \right\} . Sin \left\{ \frac{1}{2} p \left(x - \frac{1}{x} \right) \right\} \frac{dx}{1-x^2} = -\frac{1}{4} \pi Sin p$ (VIII, 687).

16) $\int Sin \left\{ p \left(x - \frac{1}{x} \right) \right\} \frac{\{(1+x) - i(1-x)\}^{-a} - \{(1+x) + i(1-x)\}^{-a}}{2i} \left(x + \frac{1}{x} \right) x^{\frac{1}{2}a-1} dx =$

$= \frac{\pi}{\Gamma(\frac{1}{2}a)} \frac{e^{-2p}}{2^{\frac{1}{2}a+1}} p^{\frac{1}{2}a-1}$ (VIII, 446).

17) $\int Cos \left\{ p \left(x - \frac{1}{x} \right) \right\} \frac{\{(1+x) - i(1-x)\}^{-a} + \{(1+x) + i(1-x)\}^{-a}}{2} \left(x + \frac{1}{x} \right) x^{\frac{1}{2}a-1} dx =$

$= \frac{-\pi}{\Gamma(\frac{1}{2}a)} \frac{e^{-2p}}{2^{\frac{1}{2}a+1}} p^{\frac{1}{2}a-1}$ (VIII, 445).

18) $\int Sin \left\{ p \left(x - \frac{1}{x} \right) \right\} \frac{1-x}{x} \frac{dx}{\sqrt{x}} = e^{-2p} \sqrt{\frac{\pi}{2p}} =$ 19) $-\int Cos \left\{ p \left(x - \frac{1}{x} \right) \right\} \frac{1+x}{x} \frac{dx}{\sqrt{x}}$ (VIII, 446).

20) $\int \frac{x\,dx}{Cos\, rx . Cos \{ r(1-x) \}} = \frac{1}{r} Cosec\, r . l Sec\, r \left[r < \frac{1}{2} \pi \right]$ (VIII, 338*).

21) $\int \frac{Sin \{ r(2x-1) \} . x^2 dx}{Cos^2 rx . Cos^2 \{ r(1-x) \}} = \frac{1}{r} Sec\, r + \frac{2}{r^2} Cosec\, r . l Cos\, r \left[r < \frac{1}{2} \pi \right]$ V. T. 149, N. 20.

F. Alg. rat. ent.; Circ. Dir. — TABLE 150. — Lim. 0 et ∞.

1) $\int Sin qx . x^{p-1} dx = \frac{1}{q^p} \Gamma(p) Sin \frac{1}{2} p\pi \; [p^2 < 1]$ (VIII, 442).

2) $\int Cos qx . x^{p-1} dx = \frac{1}{q^p} \Gamma(p) Cos \frac{1}{2} p\pi \; [p^2 < 1]$ (VIII, 442).

3) $\int Sin\left(\frac{1}{2}p\pi - qx\right).x^{p-1}dx = 0\ [p^2<1]$ (VIII, 520).

4) $\int Sin(qx^2).Sin\,2px.x\,dx = \frac{p}{2q}\sqrt{\frac{\pi}{2q}}.\left(Cos\frac{p^2}{q} + Sin\frac{p^2}{q}\right)$ (VIII, 443).

5) $\int Sin(qx^2).Cos\,2px.x\,dx = 0 =$ 6) $\int Cos(qx^2).Cos\,2px.x\,dx$ V. T. 70, N. 11, 12.

7) $\int Cos(qx^2).Sin\,2px.x\,dx = \frac{p}{2q}\sqrt{\frac{\pi}{2q}}.\left(Sin\frac{p^2}{q} - Cos\frac{p^2}{q}\right)$ (VIII, 443).

8) $\int Cos\{2\sqrt{rx}\}.x^{p-1}(1-x)^{q-1}dx = \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}\sum_0^\infty \frac{(-1)^n}{1^{n/1}}\ \frac{p^{n/1}}{(p+q)^{n/1}}(4r)^n$ (VIII, 514).

9) $\int \frac{Sin\,x.x\,dx}{\sqrt{1-2p\,Cos\,x+p^2}} = \frac{1+p}{p}\pi + 2\frac{1-p^2}{p}F'(p) - \frac{4}{p}E'(p)\ [p<1]$ (IV, 341*).

F. Alg. rat. fract. à dén. x; Circ. Dir. en num. à 1 ou 2 fact. mon. | TABLE 151. | Lim. 0 et ∞.

1) $\int Sin\,px\frac{dx}{x} = \frac{1}{2}\pi\ [p>0], = 0\ [p=0], = -\frac{1}{2}\pi\ [p<0]$ (VIII, 471).

2) $\int Cos\,px\frac{dx}{x} = \infty$ (IV, 260) $=$ 3) $\int Sin^{2a}px\frac{dx}{x}$ (E. O. A.).

4) $\int Sin^{2a+1}x\frac{dx}{x} = \frac{1}{2}\pi\frac{1^{a/2}}{2^{a/2}}$ (IV, 269). 5) $\int Tg\,px\frac{dx}{x} = \frac{1}{2}\pi$ (VIII, 385).

6) $\int Sin(p\,Tg\,x)\frac{dx}{x} = \frac{\pi}{2}(1-e^{-p})$ (VIII, 388). 7) $\int Sin\,qx.Sin\,px\frac{dx}{x} = \frac{1}{4}l\left(\frac{q+p}{q-p}\right)^2$ (E. O. A.).

8) $\int Sin\,qx.Cos\,px\frac{dx}{x} = \frac{1}{2}\pi\ [q>p], = 0\ [q<p], = \frac{1}{4}\pi\ [q=p]$ (VIII, 333).

9) $\int Sin\,qx.Cos^2px\frac{dx}{x} = \frac{1}{2}\pi[q>2p], = \frac{3}{8}\pi\ [q=2p], = \frac{1}{4}\pi\ [q<2p]$ (IV, 270).

10) $\int Sin^2qx.Sin\,px\frac{dx}{x} = \frac{1}{4}\pi[p<2q], = \frac{1}{8}\pi\ [p=2q], = 0\ [p>2q]$ (E. O. A.).

11) $\int Sin^2qx.Sin^2px\frac{dx}{x} = \infty$ (E. O. A.). 12) $\int Sin^2qx.Cos\,px\frac{dx}{x} = \frac{1}{8}l\frac{(p^2-4q^2)^2}{p^4}$ (E. O. A.).

13) $\int Sin^2 qx . Cos^3 px \frac{dx}{x} = \frac{1}{16} l \frac{(2q+p)^3 (p-2q)^3 (2q+3p)(3p-2q)}{9p^8} \left[\begin{matrix} p > 2q, \\ \text{ou } 3p < 2q \end{matrix}\right], =$

$= \frac{1}{16} l \frac{(2q+p)^3 (2q-p)^3 (2q+3p)(3p-2q)}{9p^8} [3p > 2q > p]$ (IV, 271).

14) $\int Sin^3 qx . Sin^2 px \frac{dx}{x} = \frac{1}{8}\pi [2p > 3q], = \frac{5}{32}\pi [2p = 3q], = \frac{3}{16}\pi [3q > 2p > q], =$

$= \frac{3}{32}\pi [2p = q], = 0 [2p < q]$ (E. O. A.).

15) $\int Sin^3 qx . Cos px \frac{dx}{x} = 0 [p > 3q], = -\frac{1}{16}\pi [p = 3q], = -\frac{1}{8}\pi [3q > p > q], =$

$= \frac{1}{16}\pi [p = q], = \frac{\pi}{4} [q > p]$ (E. O. A.).

16) $\int (1 - 2p \, Cos 2x + p^2)^a Sin x \frac{dx}{x} = \frac{\pi}{2} \sum_0^a \binom{a}{n}^2 p^{2n} =$ 17) $\int (1 - 2p \, Cos 2x + p^2)^a Tg x \frac{dx}{x}$

18) $\int (1 - 2p \, Cos 4x + p^2)^a Tg x \frac{dx}{x} = \frac{\pi}{2} \sum_0^a \binom{a}{n}^2 p^{2n}$

Sur 16) à 18) voyez VIII, 386.

19) $\int Sin(p \, Tg x) . Cos x \frac{dx}{x} = \frac{\pi}{2}(1 - e^{-p})$ (VIII, 388).

20) $\int Cos(p \, Tg x) . Sin x \frac{dx}{x} = \frac{\pi}{2} e^{-p} =$ 21) $\int Cos(p \, Tg x) . Tg x \frac{dx}{x}$ (VIII, 387).

22) $\int Cos(p \, Tg 2x) . Tg x \frac{dx}{x} = \frac{\pi}{2} e^{-p}$ (VIII, 387).

23) $\int Cos(p \, Tg x) . Sin^3 x \frac{dx}{x} = \frac{1-p}{4} \pi e^{-p}$ (VIII, 388).

24) $\int Sin^{2a+1} x . Cos^{2b} x \frac{dx}{x} = \frac{\pi}{2} \frac{1^{a/2} 1^{b/2}}{2^{a+b/2}} =$ 25) $\int Sin^{2a+1} x . Cos^{2b-1} x \frac{dx}{x}$ (VIII, 385).

26) $\int Cos' rx . Tg tx \frac{dx}{x} = \frac{\pi}{2}$ Malmsten, N. Act. Ups. 2, 171.

27) $\int Sin^2 2srx . Tg rx \frac{dx}{x} = \frac{\pi}{4}$ (H, 28). 28) $\int Sin^2 srx . Cot rx \frac{dx}{x} = \frac{\pi}{4}(2s - 1)$ (H, 27).

1) $\int Sin\,qx . Sin\,rx . Sin\,px \frac{dx}{x} = 0\,[p<r-q], = \frac{1}{8}\pi\,[p=r-q], = \frac{1}{4}\pi\,[r-q<p<r+q], =$

$= \frac{1}{8}\pi\,[p=q+r], = 0\,[r+q<p<\infty], [p<q<r]$ (E. O. A.).

2) $\int Sin^2 qx . Sin\,rx . Sin\,px \frac{dx}{x} = \frac{1}{8} l\left(\frac{r+p}{r-p}\right)^2 + \frac{1}{8} l \frac{(2q-r+p)(2q+r-p)}{(2q+r+p)(2q-r-p)}$ (E. O. A.).

3) $\int Sin^2 qx . Sin^2 rx . Sin\,px \frac{dx}{x} = \frac{1}{8}\pi\,[2q>2r+p>2p], = \frac{5}{16}\pi\,[2q-p=2r>p], =$

$= \frac{3}{16}\pi\,[2r>p>2(q-r)], = \frac{1}{16}\pi\,[2r=p<q], = \frac{3}{32}\pi\,[2r=p=q], =$

$= \frac{1}{8}\pi\,[2q>2r=p>q], = \frac{1}{16}\pi\,[2r=p=2q], = 0\,[2q>p+2r>4r], =$

$= \frac{1}{32}\pi\,[2q=2r+p<2p], = \frac{1}{16}\pi\,[2r+p>2q>p>2r], =$

$= 0\,[2r<p=2q<2r+p], = -\frac{1}{16}\pi\,[2r<p, 2q<p, 2q<2r+p], =$

$= -\frac{1}{32}\pi\,[3q=p-2r], = 0\,[p>2q<p-2r]$ (E. O. A.).

4) $\int Sin^{2a-1} 2x . Cos^{2b} 2x . Cos^2 x \frac{dx}{x} = \frac{\pi}{4} \frac{1^{a/2}\,1^{b/2}}{2^{a+b/2}}$ (VIII, 385).

5) $\int Cos^{2a} x . Cos\,2bx . Sin\,x \frac{dx}{x} = \frac{\pi}{2^{2a+1}} \frac{1^{2a/1}}{1^{a+b/1}\,1^{a-b/1}} =$ 6) $\int Cos^{2a-1} x . Cos\,2bx . Sin\,x \frac{dx}{x}$

7) $\int Cos^{2a} 2x . Cos\,4bx . Tg\,x \frac{dx}{x} = \frac{\pi}{2^{2a+1}} \frac{1^{2a/1}}{1^{a+b/1}\,1^{a-b/1}}$ Sur 5) à 7) voyez VIII, 385.

8) $\int Sin(p\,Tg\,x) . Sin\,x . Tg\,x \frac{dx}{x} = \frac{\pi}{2} e^{-p} =$ 9) $\int Sin(p\,Tg\,x) . Tg^2 x \frac{dx}{x}$ (VIII, 387).

10) $\int Sin(p\,Tg\,2x) . Tg\,2x . Tg\,x \frac{dx}{x} = \frac{\pi}{2} e^{-p}$ (VIII, 388).

11) $\int Sin(p\,Tg\,x) . Sin\,x . Cos\,x \frac{dx}{x} = \frac{1+p}{4} \pi e^{-p} =$ 12) $\int Sin(p\,Tg\,x) . Sin\,x . Cos^2 x \frac{dx}{x}$ (VIII, 388).

13) $\int Sin(p\,Tg\,2x) . Cos^2 2x . Tg\,x \frac{dx}{x} = \frac{1+p}{4} \pi e^{-p}$ (VIII, 388).

14) $\int Cos(p\,Tg\,2x) . Sin^2 x . Cos\,x \frac{dx}{x} = \frac{1-p}{16} \pi e^{-p} =$ 15) $\frac{1}{4} \int Cos(p\,Tg\,x) . Sin^2 x . Tg\,x \frac{dx}{x}$ (VIII, 388).

16) $\int Sin\, 4sr x . Tg\, r x . Sin\, x \frac{dx}{x} = -\frac{\pi}{2} =$ 17) $- \int Sin\{(2sr-1)x\} . Sin\, 2sr x . Tg\, r x \frac{dx}{x}$ (H, 28).

18) $\int Sin\{(2sr+1)x\} . Sin\, 2sr x . Tg\, r x \frac{dx}{x} = 0$ (H, 28).

19) $\int Sin^2 2sr x . Tg\, r x . Cos\, x \frac{dx}{x} = \frac{\pi}{4}$ (H, 28).

20) $\int Sin\, 2sr x . Cot\, r x . Sin\, x \frac{dx}{x} = \frac{\pi}{2}$ (H, 27).

21) $\int Sin\, sr x . Sin\{(sr+1)x\} . Cot\, r x \frac{dx}{x} = \frac{1}{2} s\pi$ (H, 27).

22) $\int Sin\, sr x . Sin\{(sr-1)x\} . Cot\, r x \frac{dx}{x} = \frac{1}{2}(s-1)\pi$ (H, 27).

23) $\int Sin^2 sr x . Cot\, r x . Cos\, x \frac{dx}{x} = \frac{\pi}{4}(2s-1)$ (H, 27).

F. Alg. rat. fract. à dén. x; Circ. Dir. en num. à plus. fact. mon. TABLE 153. Lim. 0 et ∞.

1) $\int Cos^s r x . Cos^{s_1} r_1 x \ldots Sin\{(sr+s_1 r_1+\ldots)x\} \frac{dx}{x} = \frac{\pi}{2^{1+s+s_1+\ldots}}(2^{s+s_1+\ldots}-1)$ (H, 11).

2) $\int Cos^s r x . Cos^{s_1} r_1 x \ldots Sin\{(sr+s_1 r_1+\ldots)x\} . Cos\, x \frac{dx}{x} = \frac{\pi}{2^{1+s+s_1+\ldots}}(2^{s+s_1+\ldots}-1)$ (H, 11).

3) $\int Cos^s r x . Cos^{s_1} r_1 x \ldots Cos\{(sr+s_1 r_1+\ldots)x\} . Sin\, x \frac{dx}{x} = \frac{\pi}{2^{1+s+s_1+\ldots}}$ (H, 11).

4) $\int Cos^s r x . Cos^{s_1} r_1 x \ldots Sin\{(sr+s_1 r_1+\ldots+1)x\} \frac{dx}{x} = \frac{\pi}{2}$ (H, 12).

5) $\int Cos^s r x . Cos^{s_1} r_1 x \ldots Sin\{(sr+s_1 r_1+\ldots-1)x\} \frac{dx}{x} = \frac{\pi}{2^{s+s_1+\ldots}}(2^{s+s_1+\ldots-1}-1)$ (H, 12).

6) $\int Cos^q p x . Cos^{q_1} p_1 x \ldots Sin^s r x . Sin^{s_1} r_1 x \ldots Sin\Big\{(s+s_1+\ldots)\frac{1}{2}\pi - (qp+q_1 p_1+\ldots+$

$+sr+s_1 r_1+\ldots)x\Big\} \frac{dx}{x} = \frac{-\pi}{2^{1+q+q_1+\ldots+s+s_1+\ldots}}$ (H, 13).

7) $\int Cos^q p x . Cos^{q_1} p_1 x \ldots Sin^s r x . Sin^{s_1} r_1 x \ldots Sin\Big\{(s+s_1+\ldots)\frac{1}{2}\pi - (qp+q_1 p_1+\ldots+$

$+sr+s_1 r_1+\ldots)x\Big\} . Cos\, x \frac{dx}{x} = \frac{-\pi}{2^{1+q+q_1+\ldots+s+s_1+\ldots}}$ (H, 13).

8) $\int Cos^q px . Cos^{q_1} p_1 x \ldots Sin^s rx . Sin^{s_1} r_1 x \ldots Cos \left\{ (s+s_1+\ldots)\frac{1}{2}\pi - (qp+q_1p_1+\ldots+ \right.$

$\left. +sr+s_1r_1+\ldots)x \right\} . Sin\, x \frac{dx}{x} = \frac{\pi}{2^{1+q+q_1+\ldots+s+s_1+\ldots}}$ (H, 13).

9) $\int Cos^q px . Cos^{q_1} p_1 x \ldots Sin^s rx . Sin^{s_1} r_1 x \ldots Sin \left\{ (s+s_1+\ldots)\frac{1}{2}\pi - (qp+q_1p_1+\ldots+ \right.$

$\left. +sr+s_1r_1+\ldots+1)x \right\} \frac{dx}{x} = \frac{-\pi}{2^{q+q_1+\ldots+s+s_1+\ldots}}$ (H, 13).

10) $\int Cos^q px . Cos^{q_1} p_1 x \ldots Sin^s rx . Sin^{s_1} r_1 x \ldots Sin \left\{ (s+s_1+\ldots)\frac{1}{2}\pi - (qp+q_1p_1+\ldots+ \right.$

$\left. +sr+s_1r_1+\ldots-1)x \right\} \frac{dx}{x} = 0$ (H, 13).

11) $\int Cos^q rx . Cos^{q_1} r_1 x \ldots Sin\, tx \frac{dx}{x} = \frac{\pi}{2} =$ 12) $\int Cos^q rx . Cos^{q_1} r_1 x \ldots Sin\, tx . Cos\, x \frac{dx}{x}$

13) $\int Cos^q rx . Cos^{q_1} r_1 \ldots Cos\, tx . Sin\, x \frac{dx}{x} = 0$

Dans 11) à 13) on a $t > sr + s_1 r_1 + \ldots$ (H, 24).

14) $\int Cos^q px . Cos^{q_1} p_1 x \ldots Sin^s rx . Sin^{s_1} r_1 x \ldots Sin \left\{ (s+s_1+\ldots)\frac{1}{2}\pi - tx \right\} \frac{dx}{x} = 0$

15) $\int Cos^q px . Cos^{q_1} p_1 x \ldots Sin^s rx . Sin^{s_1} r_1 x \ldots Cos \left\{ (s+s_1+\ldots)\frac{1}{2}\pi - tx \right\} . Sin\, x \frac{dx}{x} = 0$

16) $\int Cos^q px . Cos^{q_1} p_1 x \ldots Sin^s rx . Sin^{s_1} r_1 x \ldots Sin \left\{ (s+s_1+\ldots)\frac{1}{2}\pi - tx \right\} . Cos\, x \frac{dx}{x} = 0$

Dans 14) à 16) on a $t > qp + q_1 p_1 + \ldots + sr + s_1 r_1 + \ldots$ (H, 24).

1) $\int \sqrt[3]{Sin\, x} \frac{dx}{x} = \sqrt[4]{27} . F'\left(Sin \frac{\pi}{12}\right)$ (VIII, 388).

2) $\int Sin\, x . \sqrt[3]{Sin^2 x} \frac{dx}{x} = 3\sqrt[4]{27} . E'\left(Sin \frac{\pi}{12}\right) - \frac{3+3\sqrt{3}}{2\sqrt[4]{3}} F'\left(Sin \frac{\pi}{12}\right) =$ 3) $\int Tg\, x . \sqrt[3]{Sin^2 x} \frac{dx}{x}$

4) $\int Tg\, x . \sqrt[3]{Sin^2 2x} \frac{dx}{x} = 3\sqrt[4]{27} . E'\left(Sin \frac{\pi}{12}\right) - \frac{3+3\sqrt{3}}{2\sqrt[4]{3}} F'\left(Sin \frac{\pi}{12}\right) =$ 5) $\int Sin\, x . \sqrt[3]{Cos^2 x} \frac{dx}{x}$

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6) $\int Tg\,x\,.\sqrt[3]{Cos^2 x}\,\frac{dx}{x} = 3\sqrt[4]{27}\,.\,E'\left(Sin\,\frac{\pi}{12}\right) - \frac{3+3\sqrt{3}}{2\sqrt[4]{3}}\,F'\left(Sin\,\frac{\pi}{12}\right) =$ 7) $\int Tg\,x\,.\sqrt[3]{Cos^2 2x}\,\frac{dx}{x}$

Sur 2) à 7) voyez VIII, 388.

8) $\int Sin\,x\,.\sqrt{1-p^2\,Sin^2 x}\,\frac{dx}{x} = E'(p) =$ 9) $\int Tg\,x\,.\sqrt{1-p^2\,Sin^2 x}\,\frac{dx}{x}$ (VIII, 392).

10) $\int Tg\,x\,.\sqrt{1-p^2\,Sin^2 2x}\,\frac{dx}{x} = E'(p)$ (VIII, 392*).

11) $\int Sin\,x\,.\,Cos\,x\,.\sqrt{1-p^2\,Sin^2 x}\,\frac{dx}{x} = \frac{1}{3p^2}\left\{(1+p^2)E'(p)-(1-p^2)F'(p)\right\}$ (VIII, 393).

12) $\int Sin\,x\,.\,Cos^2 x\,.\sqrt{1-p^2\,Sin^2 x}\,\frac{dx}{x} = \frac{1}{3p^2}\left\{(1+p^2)E'(p)-(1-p^2)F'(p)\right\}$ (VIII, 393).

13) $\int Tg\,x\,.\,Cos^2 2x\,.\sqrt{1-p^2\,Sin^2 2x}\,\frac{dx}{x} = \frac{1}{3p^2}\left\{(1+p^2)E'(p)-(1-p^2)F'(p)\right\}$ (VIII, 393*).

14) $\int Sin^2 x\,.\,Tg\,x\,.\sqrt{1-p^2\,Sin^2 x}\,\frac{dx}{x} = \frac{1}{3p^2}\left\{(2p^2-1)E'(p)+(1-p^2)F'(p)\right\}$ (VIII, 392).

15) $\int Sin^3 x\,.\sqrt{1-p^2\,Sin^2 x}\,\frac{dx}{x} = \frac{1}{3p^2}\left\{(2p^2-1)E'(p)+(1-p^2)F'(p)\right\}$ (VIII, 392).

16) $\int Sin^3 x\,.\,Cos^2 x\,.\sqrt{1-p^2\,Sin^2 2x}\,\frac{dx}{x} = \frac{1}{12p^2}\left\{(2p^2-1)E'(p)+(1-p^2)F'(p)\right\}$ (VIII, 392).

17) $\int Sin\,x\,.\sqrt{1-p^2\,Sin^2 x}^{\,3}\,\frac{dx}{x} = \frac{1}{3}\left\{2(2-p^2)E'(p)-(1-p^2)F'(p)\right\}$ (VIII, 393).

18) $\int Tg\,x\,.\sqrt{1-p^2\,Sin^2 x}^{\,3}\,\frac{dx}{x} = \frac{1}{3}\left\{2(2-p^2)E'(p)-(1-p^2)F'(p)\right\}$ (VIII, 393).

19) $\int Tg\,x\,.\sqrt{1-p^2\,Sin^2 2x}^{\,3}\,\frac{dx}{x} = \frac{1}{3}\left\{2(2-p^2)E'(p)-(1-p^2)F'(p)\right\}$ (VIII, 393).

20) $\int Sin\,x\,.\sqrt{1-p^2\,Cos^2 x}\,\frac{dx}{x} = E'(p) =$ 21) $\int Tg\,x\,.\sqrt{1-p^2\,Cos^2 x}\,\frac{dx}{x}$ (VIII, 393).

22) $\int Tg\,x\,.\sqrt{1-p^2\,Cos^2 2x}\,\frac{dx}{x} = E'(p)$ (VIII, 393*).

23) $\int Sin\,x\,.\,Cos\,x\,.\sqrt{1-p^2\,Cos^2 x}\,\frac{dx}{x} = \frac{1}{3p^2}\left\{(2p^2-1)E'(p)+(1-p^2)F'(p)\right\}$ (VIII, 393).

24) $\int Sin\,x\,.\,Cos^2 x\,.\sqrt{1-p^2\,Cos^2 x}\,\frac{dx}{x} = \frac{1}{3p^2}\left\{(2p^2-1)E'(p)+(1-p^2)F'(p)\right\}$ (VIII, 393).

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25) $\int Tg\,x.Cos^2 2x.\sqrt{1-p^2 Cos^2 2x}\frac{dx}{x}=\frac{1}{3p^2}\{(2p^2-1)E'(p)+(1-p^2)F'(p)\}$ (VIII, 393*).

26) $\int Sin^2 x.\sqrt{1-p^2 Cos^2 x}\frac{dx}{x}=\frac{1}{3p^2}\{(1+p^2)E'(p)-(1-p^2)F'(p)\}$ (VIII, 393).

27) $\int Sin^2 x.Tg\,x.\sqrt{1-p^2 Cos^2 x}\frac{dx}{x}=\frac{1}{3p^2}\{(1+p^2)E'(p)-(1-p^2)F'(p)\}$ (VIII, 393).

28) $\int Sin^3 x.Cos\,x.\sqrt{1-p^2 Cos^2 2x}\frac{dx}{x}=\frac{1}{12p^2}\{(1+p^2)E'(p)-(1-p^2)F'(p)\}$ (VIII, 393).

29) $\int Sin\,x.\sqrt{1-p^2 Cos^2 x}^3\frac{dx}{x}=\frac{1}{3}\{(4-2p^2)E'(p)-(1-p^2)F'(p)\}$ (VIII, 393).

30) $\int Tg\,x.\sqrt{1-p^2 Cos^2 x}^3\frac{dx}{x}=\frac{1}{3}\{(4-2p^2)E'(p)-(1-p^2)F'(p)\}$ (VIII, 393).

31) $\int Tg\,x.\sqrt{1-p^2 Cos^2 2x}^3\frac{dx}{x}=\frac{1}{3}\{(4-2p^2)E'(p)-(1-p^2)F'(p)\}$ (VIII, 393).

F. Alg. rat. fract. à dén. x; Circ. Dir. en num. polynôme. TABLE 155. Lim. 0 et ∞.

1) $\int\{Sin^2 qx-Sin^2 px\}\frac{dx}{x}=\frac{1}{2}l\frac{q}{p}$ (E. O. A.).

2) $\int\{Sin^{2a} qx-Sin^{2a} px\}\frac{dx}{x}=\frac{1}{2^{2a}}\frac{(a+1)^{a/1}}{1^{a/1}}l\frac{q}{p}$ (VIII, 273).

3) $\int\{Cos\,qx-Cos\,px\}\frac{dx}{x}=l\frac{p}{q}$ (VIII, 337).

4) $\int\{Cos^{2a} qx-Cos^{2a} px\}\frac{dx}{x}=l\frac{p}{q}.\left\{1-\frac{(a+1)^{a/1}}{4^{a/1}}\right\}$ (VIII, 273).

5) $\int\{Cos^{2a+1} qx-Cos^{2a+1} px\}\frac{dx}{x}=l\frac{p}{q}$ (VIII, 273).

6) $\int\{3-4\,Sin^2 qx\}\,Sin^2 qx\frac{dx}{x}=\frac{1}{2}l\,2$ (IV, 272).

7) $\int\{Cos\,\lambda-Cos\,b\lambda x\}\,Sin\,ax\frac{dx}{x}=\frac{1}{2}\pi(Cos\,\lambda-1)\,[a>b\lambda>0],=\frac{1}{2}\pi\,Cos\,\lambda\,[a<b\lambda<\infty]$ (IV, 272).

8) $\int\{Cos^a px.Cos\,apx-Cos^a qx.Cos\,aqx\}\frac{dx}{x}=\left(1-\frac{a}{2^a}\right)l\frac{q}{p}$ (VIII, 273).

F. Alg. rat. fract. à dén. x; Circ. Dir. en num. polyn.	TABLE 155, suite.	Lim. 0 et ∞.

9) $\int \{ Cos(x^2) - Cos\, x \} \frac{dx}{x} = \frac{1}{2} A$ (VIII, 671).

10) $\int \{ Cos(x^4) - Cos(x^2) \} \frac{dx}{x} = \frac{1}{4} A$ (VIII, 671).

11) $\int \{ Cos(x^4) - Cos\, x \} \frac{dx}{x} = \frac{3}{4} A$ (VIII, 672).

12) $\int \{ Cos(x^{2^a}) - Cos\, x \} \frac{dx}{x} = (1 - 2^{-a}) A$ (VIII, 672).

13) $\int \{ Cos(x^p) - Cos(x^q) \} \frac{dx}{x} = \frac{p-q}{pq} A$ (VIII, 701*).

F. Alg. rat. fract. à dén. x^a pour a spécial; Circ. Dir. en num. à un fact. monôme.	TABLE 156.	Lim. 0 et ∞.

1) $\int Sin^2 qx \frac{dx}{x^2} = \frac{1}{2} q\pi$ (VIII, 365).

2) $\int Sin^3 qx \frac{dx}{x^2} = \frac{3}{4} q\, l3$ (E. O. A.).

3) $\int Sin^4 qx \frac{dx}{x^2} = \frac{1}{4} q\pi$ (E. O. A.).

4) $\int Sin^5 qx \frac{dx}{x^2} = \frac{5}{16} q \{ 3\, l3 - l5 \}$ (E. O. A.).

5) $\int Sin^6 qx \frac{dx}{x^2} = \frac{3}{16} q\pi$ (IV, 273).

6) $\int Sin^{10} qx \frac{dx}{x^2} = \frac{35}{256} q\pi$ (IV, 273).

7) $\int Sin^3 qx \frac{dx}{x^3} = \frac{3}{8} q^2 \pi$ (VIII, 366).

8) $\int Sin^4 qx \frac{dx}{x^3} = q^2\, l2$ (E. O. A.).

9) $\int Sin^5 qx \frac{dx}{x^3} = \frac{5}{32} q^2 \pi$ (E. O. A.).

10) $\int Sin^6 qx \frac{dx}{x^3} = \frac{3}{16} q^2 (8\, l2 - 3\, l3)$ (IV, 273).

11) $\int Sin^4 qx \frac{dx}{x^4} = \frac{1}{3} q^3 \pi$ (E. O. A.).

12) $\int Sin^5 qx \frac{dx}{x^4} = \frac{5}{96} q^3 (25\, l5 - 27\, l3)$ (IV, 273).

13) $\int Sin^5 qx \frac{dx}{x^5} = \frac{115}{384} q^4 \pi$ (IV, 273).

14) $\int Sin^6 qx \frac{dx}{x^5} = \frac{1}{16} q^4 (27\, l3 - 32\, l2)$ (IV, 273).

F. Alg. rat. fract. à dén. x^a pour a spécial; Circ. Dir. en num. à plus. fact. mon.	TABLE 157.	Lim. 0 et ∞.

1) $\int Sin\, qx . Sin\, px \frac{dx}{x^2} = \frac{1}{2} p\pi \; [p \leq q], = \frac{1}{2} q\pi \; [p \geq q]$ (VIII, 365).

2) $\int Sin^2 qx . Sin\, px \frac{dx}{x^2} = \frac{2q+p}{8} l(2q+p)^2 - \frac{2q-p}{8} l(2q-p)^2 - \frac{1}{2} p\, lp$ (E. O. A.).

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3) $\int Sin^2 qx . Sin^2 px \frac{dx}{x^2} = \frac{1}{4} p\pi \; [q \geqq p], = \frac{1}{4} q\pi \; [q \leqq p]$ (E. O. A.).

4) $\int Sin^3 qx . Sin^3 px \frac{dx}{x^2} = \frac{2q-3p}{32} l(2q-3p)^2 - \frac{2q+3p}{32} l(2q+3p)^2 + \frac{2q+p}{32} 3\, l(2q+p)^2 - - \frac{2q-p}{32} 3\, l(2q-p)^2 + \frac{3}{8} p\, lp$ (E. O. A.).

5) $\int Sin^2 qx . Cos px \frac{dx}{x^2} = 0 \; [p \geqq 2q], = \frac{2q-p}{4} \pi \; [p < 2q]$ (E. O. A.).

6) $\int Sin^2 qx . Cos^2 px \frac{dx}{x^2} = \frac{2q-p}{4} \pi \; [q > p], = \frac{1}{4} q\pi \; [q \leqq p]$ V. T. 156, N. 1 et T. 157, N. 3.

7) $\int Sin^3 qx . Cos px \frac{dx}{x^2} = \frac{p+3q}{16} l(p+3q)^2 - \frac{p-3q}{16} l(p-3q)^2 - \frac{p+q}{16} 3\, l(p+q)^2 + + \frac{p-q}{16} 3\, l(p-q)^2$ (E. O. A.).

8) $\int Sin\, qx . Sin\, rx . Sin\, px \frac{dx}{x^2} = \frac{q+r+p}{8} l(q+r+p)^2 - \frac{q-r+p}{8} l(q-r+p)^2 - - \frac{q+r-p}{8} l(q+r-p)^2 + \frac{q-r-p}{8} l(q-r-p)^2$ (E. O. A.).

9) $\int Sin^2 qx . Sin\, rx . Sin\, px \frac{dx}{x^2} = \frac{1}{2} r\pi \; [2q > p + r = 2r], = \frac{1}{4} q\pi \; [2q \leqq r + p = 2r], = = \frac{1}{4} p\pi \; [2q \geqq r + p > 2p], = \frac{2q-r+p}{8} \pi \; [r+p > 2q > r-p], = = 0 \; [2q \leqq r - p > 0]$ (E. O. A.).

10) $\int Sin^2 qx . Sin^2 rx . Sin\, px \frac{dx}{x^2} = \frac{2q-2r-p}{32} l(2q-2r-p)^2 - \frac{2q+2r+p}{32} l(2q+2r+p)^2 + + \frac{2q+2r-p}{32} l(2q+2r-p)^2 - \frac{2q-2r+p}{32} l(2q-2r+p)^2 + \frac{2q+p}{16} l(2q+p)^2 - - \frac{2q-p}{16} l(2q-p)^2 + \frac{2r+p}{16} l(2r+p)^2 - \frac{2r-p}{16} l(2r-p)^2 - \frac{1}{4} p\, lp$ (E. O. A.).

11) $\int Sin^2 srx . Cot\, rx . Sin\, x \frac{dx}{x^2} = \frac{\pi}{4} (2s-1)$ (H, 28).. 12) $\int Sin^2 2srx . Tg\, rx . Sin\, x \frac{dx}{x^2} = \frac{\pi}{4}$ (H, 28).

13) $\int Cos^s rx . Cos^{s_1} r_1 x \ldots Sin\{(sr + s_1 r_1 + \ldots) x\} . Sin\, x \frac{dx}{x^2} = \frac{\pi}{2^{1+s+s_1+\ldots}} (2^{s+s_1+\cdots} - 1)$ (H, 12).

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14) $\int Cos^q px . Cos^{q_1} p_1 x \dots Sin^s rx . Sin^{s_1} r_1 x \dots Sin \left\{ (s+s_1+\dots)\frac{1}{2}\pi - \right.$

$\left. -(qp+q_1p_1+\dots+sr+s_1r_1+\dots)x \right\} . Sin\, x \frac{dx}{x^2} = \frac{-\pi}{2^{1+q+q_1+\dots+s+s_1+\dots}}$ (H, 13).

15) $\int Cos^s rx . Cos^{s_1} r_1 x \dots Sin\, tx . Sin\, x \frac{dx}{x^2} = \frac{\pi}{2}$ $[t > sr + s_1 r_1 + \dots]$ (H, 24).

16) $\int Cos^q px . Cos^{q_1} p_1 x \dots Sin^s rx . Sin^{s_1} r_1 x \dots Sin \left\{ (s+s_1+\dots)\frac{1}{2}\pi - tx \right\} . Sin\, x \frac{dx}{x^2} = 0$

$[t > qp + q_1 p_1 + \dots + sr + s_1 r_1 + \dots]$ (H, 24).

17) $\int Sin^2 qx . Sin\, px \frac{dx}{x^3} = \frac{1}{2} q^2 \pi$ $[p \geqq 2q]$, $= \frac{1}{8}\pi(4pq - p^2)$ $[p \leqq 2q]$ (VIII, 366).

18) $\int Sin^2 qx . Sin^2 px \frac{dx}{x^3} = \frac{3}{16} p^2 \pi$ $[2q > 3p]$, $= \frac{1}{12} q^2 \pi$ $[2q = 3p]$, $= \frac{1}{32}\{6p^2 - (3p-2q)^2\}\pi$

$[3p > 2q > p]$, $= \frac{1}{4} q^2 \pi$ $[p \geqq 2q]$ (E. O. A.).

19) $\int Sin^3 qx . Cos\, px \frac{dx}{x^3} = 0$ $[p \geqq 3q]$, $= \frac{1}{16}(3q-p)^2 \pi$ $[3q > p > q]$, $= \frac{1}{4} p^2 \pi$ $[q = p]$, $=$

$= \frac{1}{8}(3q^2 - p^2)\pi$ $[q > p]$ (E. O. A.).

20) $\int Sin\, qx . Sin\, px . Sin\, rx \frac{dx}{x^3} = \frac{1}{2} pq\pi$ $[r \geqq p+q]$, $= \frac{1}{4}\pi(pq+pr+qr) - \frac{1}{8}\pi(p^2+q^2+r^2)$

$[r < p+q]$; $[p < q < r]$ (VIII, 366).

21) $\int Sin^2 2srx . Tg\, rx . Sin^2 x \frac{dx}{x^3} = \frac{3}{8}\pi$ (H, 29).

22) $\int Sin^2 srx . Cot\, rx . Sin^2 x \frac{dx}{x^3} = \frac{\pi}{8}(4s - 3)$ (H, 28).

23) $\int Cos^s rx . Cos^{s_1} r_1 x \dots Sin\{(sr + s_1 r_1 + \dots)x\} . Sin^2 x \frac{dx}{x^3} = \frac{\pi}{2^{1+s+s_1+\dots}} \left\{ 2^{s+s_1+\dots} - \frac{1}{4}(s+s_1+\dots) - 1 \right\}$

(H, 12).

24) $\int Cos^q px . Cos^{q_1} p_1 x \dots Sin^s rx . Sin^{s_1} r_1 x \dots Sin \left\{ (s+s_1+\dots)\frac{1}{2}\pi - (qp + q_1 p_1 + \dots + sr + \right.$

$\left. + s_1 r_1 + \dots)x \right\} . Sin^2 x \frac{dx}{x^3} = \frac{-\pi}{2^{3+q+q_1+\dots+s+s_1+\dots}}(4 + q + q_1 + \dots - s - s_1 - \dots)$ (H, 14).

F. Alg. rat. fract. à dén. x^a pour a spécial; Circ. Dir. en num. à plus. fact. mon. — **TABLE 157, suite.** — Lim. 0 et ∞.

25) $\int Cos^s rx . Cos^{s_1} r_1 x \ldots Sin\, tx . Sin^2 x \frac{dx}{x^3} = \frac{\pi}{2^{3+s+s_1+\ldots}} \left\{ 2^{1+s+s_1+\ldots} - 1 \right\} [t > sr + s_1 r_1 + \ldots]$ (H, 24).

26) $\int Cos^q px . Cos^{q_1} p_1 x \ldots Sin^s rx . Sin^{s_1} r_1 x \ldots Sin \left\{ (s + s_1 + \ldots) \frac{1}{2} \pi - tx \right\} . Sin^2 x \frac{dx}{x^3} =$

$= \frac{\pi}{2^{3+q+q_1+\ldots+s+s_1+\ldots}} [t > qp + q_1 p_1 + \ldots + sr + s_1 r_1 + \ldots]$ (H, 24).

27) $\int Sin^2 qx . Sin^2 px \frac{dx}{x^4} = \frac{1}{6} p^2 \pi (3q - p) [p \leq q], = \frac{1}{6} q^2 \pi (3p - q) [p \geq q]$ (IV, 274).

28) $\int Sin^3 qx . Sin\, px \frac{dx}{x^4} = \frac{1}{2} q^3 \pi [p > 3q], = \frac{1}{48} \pi \left\{ 24 q^3 - (3q - p)^3 \right\} [q \leq p \leq 3q], =$

$= \frac{1}{48} \pi \left\{ 24 p q^2 - (p + q)^3 \right\} [p \leq q]$ (IV, 274).

F. Alg. rat. fract. à dén. x^a pour a spécial; Circ. Dir. en num. polynôme. — **TABLE 158.** — Lim. 0 et ∞.

1) $\int (1 - Cos\, qx) \frac{dx}{x^2} = \frac{1}{2} q \pi$ V. T. 156, N. 1.

2) $\int (Cos\, qx - Cos\, px) \frac{dx}{x^2} = \frac{1}{2} (p - q) \pi$ V. T. 158, N. 1.

3) $\int (Sin\, x - x\, Cos\, x) \frac{dx}{x^3} = 1$ (IV, 275).

4) $\int (p\, Cos\, qx - rx\, Sin\, qx - p) \frac{dx}{x^3} = (r - pq) \frac{\pi}{2}$ (IV, 275).

5) $\int (Sin\, qx - qx\, Cos\, qx) \frac{dx}{x^3} = \frac{1}{4} q^2 \pi$ (VIII, 580).

6) $\int (x^3 - Sin^3 x) \frac{dx}{x^6} = \frac{13}{32} \pi$ (IV, 275).

7) $\int (1 - Cos^{2a-1} x) \frac{dx}{x^2} = \frac{a \pi}{2^{2a}} \binom{2a}{a} =$

8) $\int (1 - Cos^{2a} x) \frac{dx}{x^2}$ Stefan, Schl. Z. 7. 357.

F. Alg. rat. fract. à dén. x^a pour a général; Circ. Dir. en num. — **TABLE 159.** — Lim. 0 et ∞.

1) $\int Sin\, qx \frac{dx}{x^p} = \frac{\pi}{2 \Gamma(p)} q^{p-1} Cosec \frac{1}{2} p \pi [0 < p < 2]$, (VIII, 442) $= \infty [p \geq 2]$ (IV, 276).

2) $\int Sin^b x \frac{dx}{x^a} = \frac{(-1)^{\frac{1}{2}(a+b)-1}}{2^{b-1} 1^{a-1/1}} \frac{\pi}{2} \sum_0^{\frac{1}{2}(b-1)} (-1)^n \binom{b}{n} (b - 2n)^{a-1} \left[\begin{matrix} a \text{ et } b \\ \text{impairs} \end{matrix} \right], = \frac{(-1)^{\frac{1}{2}(a+b)}}{2^{b-1} 1^{a-1/1}} \frac{\pi}{2}$

$\sum_0^{\frac{1}{2}b-1} (-1)^n \binom{b}{n} (b - 2n)^{a-1} \left[\begin{matrix} a \text{ et } b \\ \text{pairs} \end{matrix} \right], = \frac{(-1)^{\frac{1}{2}(a+b-1)}}{2^{b-1} 1^{a-1/1}} \sum_0^{\frac{1}{2}b-1} (-1)^n \binom{b}{n} (b - 2n)^{a-1}$

$$l(b-2n)\begin{bmatrix} a \text{ impair}, \\ b \text{ pair} \end{bmatrix}, = \frac{(-1)^{\frac{1}{2}(a+b-1)}}{2^{b-1}\, 1^{a-1/1}} \sum_{0}^{\frac{1}{2}(b-1)} (-1)^n \binom{b}{n} (b-2n)^{a-1}\, l(b-2n) \begin{bmatrix} a \text{ pair}, \\ b \text{ impair} \end{bmatrix}, =$$

$$= \frac{(-1)^{\frac{1}{2}(b-1)}\pi}{2^b\,\Gamma(a)\,Sin\,\frac{1}{2}a\pi} \sum_{0}^{\frac{1}{2}(b-1)} (-1)^n \binom{b}{n} (b-2n)^{a-1} [0 < a < 1, b \text{ imp.}], = \infty [0 < a < 1, b \text{ pair}], =$$

$$= \frac{(-1)^{\frac{1}{2}(b+c-1)}\pi}{2^b\,\Gamma(a)\,Sin\,\frac{1}{2}r\pi} \sum_{0}^{\frac{1}{2}(b-1)} (-1)^n \binom{b}{n} (b-2n)^{a-1} [a = c+r, 0 < r < 1, b \text{ et } c+1 \text{ impairs}], =$$

$$= \frac{(-1)^{\frac{1}{2}(b+c-1)}\pi}{2^b\,\Gamma(a)\,Sin\,\frac{1}{2}r\pi} \sum_{0}^{\frac{1}{2}b-1} (-1)^n \binom{b}{n} (b-2n)^{a-1} [a = c+r, 0 < r < 1, b \text{ et } c+1 \text{ pairs}], =$$

$$= \frac{(-1)^{\frac{1}{2}(b+c)}\pi}{2^b\,\Gamma(a)\,Cos\,\frac{1}{2}r\pi} \sum_{0}^{\frac{1}{2}(b-1)} (-1)^n \binom{b}{n} (b-2n)^{a-1} [a = c+r, 0 < r < 1, b \text{ et } c \text{ impairs}], =$$

$$= \frac{(-1)^{\frac{1}{2}(b+c)}\pi}{2^b\,\Gamma(a)\cdot Cos\,\frac{1}{2}r\pi} \sum_{0}^{\frac{1}{2}b-1} (-1)^n \binom{b}{n} (b-2n)^{a-1} [a = c+r, 0 < r < 1, b \text{ et } c \text{ pairs}]$$

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3) $\int Cos\, qx \frac{dx}{x^p} = \frac{\pi}{2\Gamma(p)} q^{p-1}\, Sec\,\frac{1}{2}p\pi\ [p^2 < 1]$, (VIII, 442) $= \infty\ [p^2 > 1]$ (IV, 277).

4) $\int Cos\left(\frac{1}{2}(p+1)\pi + qx\right) \frac{dx}{x^{p+1}} = 0$ (IV, 278).

5) $\int Cos\left(\frac{1}{2}(p+1)\pi - qx\right) \frac{dx}{x^{p+1}} = \frac{\pi q^p}{\Gamma(p+1)}$ (IV, 278).

6) $\int Cos\left(\frac{1}{2}p\pi + qx\right) \frac{dx}{x^{p+1}} = -\frac{1}{p} q^p\, \Gamma(1-p)$ Lobatto, N. V. Amst. 6, 1.

7) $\int Sin\, qx . Sin\, x \frac{dx}{x^p} = \frac{\pi}{4\Gamma(p)} Sec\,\frac{1}{2}p\pi . \{(1-q)^{p-1} - (1+q)^{p-1}\}\ [q < 1], = \frac{\pi}{4\Gamma(p)} Sec\,\frac{1}{2}p\pi .$
$\{(q-1)^{p-1} - (1+q)^{p-1}\}\ [q > 1]$ (IV, 278).

8) $\int Cos\, qx . Sin\, x \frac{dx}{x^p} = \frac{\pi}{4\Gamma(p)} Cosec\,\frac{1}{2}p\pi . \{(1-q)^{p-1} + (1+q)^{p-1}\}\ [q < 1], = \frac{\pi}{4\Gamma(p)} Cosec\,\frac{1}{2}p\pi .$
$\{(q+1)^{p-1} - (q-1)^{p-1}\}\ [q > 1]$ (IV, 278).

9) $\int Sin^p x\, Sin . \{(p-1)x\} \frac{dx}{x^a} = (-1)^{\frac{p-a-1}{2}} \frac{\pi}{2^p\, 1^{a-1/1}}$

10) $\int Sin^p x . Cos\{(p-1)x\} \frac{dx}{x^a} = (-1)^{\frac{p-a}{2}} \frac{\pi}{2^p\, 1^{a-1/1}}$

11) $\int Sin^p x . Cos\{(p-2)x\} \frac{dx}{x^a} = (-1)^{\frac{p-a}{2}} \frac{\pi}{2^{p-a+1}\, 1^{a-1/1}}$

Sur 9) à 11) voyez Bronwin, L. & E. Phil. Mag. 24, 491.

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12) $\int \left(\frac{Sin\, x}{x}\right)^a \frac{Sin\, a x}{x}\, dx = \frac{1}{2}\pi$ (IV, 278).

13) $\int \left(\frac{Sin\, x}{x}\right)^a \frac{Sin\, a q x}{x}\, dx = \frac{1}{2}\pi \left\{1 - \frac{1}{2^{a-1}\, 1^{a/1}} \sum_0^{\frac{1}{2}(1-q)a} (-1)^n \frac{a^{n/-1}}{1^{n/1}} (a - aq - 2n)^a \right\}$ (IV, 278).

14) $\int \left(\frac{Sin\, x}{x}\right)^a . Cos\, b x\, dx = 0\ [b \geqq a]$ (IV, 278).

15) $\int \left(\frac{Sin\, x}{x}\right)^a . Cos\, a q x\, dx = \frac{\pi}{2^{a-1}} \sum_0^{\frac{1}{2}(1 \pm a) q} (-1)^n \frac{a^{n/-1}}{1^{a-1/1}\, 1^{n/1}} (a \pm a q - 2n)^{a-1}$ (IV, 278).

16) $\int \left(\frac{Sin\, x}{x}\right)^a . Cos\, q x\, dx = \frac{\pi}{1^{a/1}\, 2^a} \sum_0^\infty (-1)^n \binom{a}{n} (q + a - 2n)^{a-1}$ (IV, 278).

17) $\int Sin^a x . Sin\, 2 q x \frac{dx}{x^{a+1}} = (-1)^a \frac{\pi}{2^{a+1}} [2q < a], = 0 \left[\begin{matrix} 2q > a, \\ q \text{ entier} \end{matrix}\right]$ (IV, 279).

18) $\int Sin^a x . Sin\, 2 q x \frac{dx}{x^{b+1}} = \frac{\pi}{2^{a+1}\, 1^{b/1}} Sec\left(\frac{a+b}{2}\pi\right) . \Delta^a . (2q - a)^b [2q < a], = \frac{\pi}{2^{a+1}\, 1^{b/1}} Sec\left(\frac{a+b}{2}\pi\right).$

$\left\{ \sum_0^\infty (-1)^n \binom{a}{n} (a + 2q - 2n)^b - \sum_0^\infty (-1)^n \binom{a}{n} (a - 2q - 2n)^b \right\} [2q > a], =$

$= \frac{(-1)^{\frac{1}{2}(a+b-1)}}{2^a\, 1^{b/1}} \Delta^a . \{(2q - a)^b\, l(2q - a)\}$ [$a + b$ impair] (IV, 279).

19) $\int Sin^a x . Cos\, 2 q x \frac{dx}{x^{b+1}} = \frac{-\pi}{2^{b+1}\, 1^{b/1}} Cosec\left(\frac{a+b}{2}\pi\right) . \Delta^a . (2q - a)^b [2q > a], = \frac{-\pi}{2^{a+1}\, 1^{b/1}} Cosec\left(\frac{a+b}{2}\pi\right).$

$\left\{ \sum_0^\infty (-1)^n \binom{a}{n} (a + 2q - 2n)^b + \sum_0^\infty (-1)^n \binom{a}{n} (a - 2q - 2n)^b \right\} [2q < a], =$

$= \frac{(-1)^{\frac{1}{2}(a+b)}}{2^a\, 1^{b/1}} \Delta . \{(2q - a)^b\, l(2q - a)\}$ [$a + b$ pair] (IV, 279, 280).

20) $\int \left(\frac{Sin\, x}{x}\right)^{a-1} . Sin\, a x . Cos\, x \frac{dx}{x} = \frac{1}{2}\pi$ (IV, 280).

21) $\int \left(\frac{Sin\, x}{x}\right)^{2a} . Sin\, 2 a x . Tg\, x \frac{dx}{x} = (-1)^{a-1} \frac{2^{2a} - 1}{1^{2a/1}} \pi\, 2^{a-1}\, B_{2a-1}$

Hamilton, L. & E. Phil. Mag. 23, 360.

22) $\int Sin\{(2q + a) x\} . Sin^a x \frac{dx}{x^{b+1}} = \frac{2^{b-a-1}}{1^{b/1}} \pi\, Sec\left(\frac{a+b}{2}\pi\right) . \Delta^a . q^b [a > b]$ (IV, 280).

23) $\int Cos\{(2q + a) x\} . Sin^a x \frac{dx}{x^{b+1}} = -\frac{2^{b-a-1}\pi}{1^{b/1}} Cosec\left(\frac{a+b}{2}\pi\right) . \Delta^a . q^b [a > b]$ (IV, 280).

24) $\int Sin\left\{(2p + a) x + \frac{1}{2} a \pi\right\} . Sin^a x \frac{dx}{x^{q+1}} = \frac{\pi}{2^{a-q+1}\, \Gamma(q+1)} Cosec\left(\frac{q+1}{2}\pi\right) . \Delta^a . p^q$ (IV, 280)

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25) $\int Cos\left\{(2p+a)x+\frac{1}{2}a\pi\right\}.Sin^a x\frac{dx}{x^{q+1}}=\frac{\pi}{2^{a-q+1}\Gamma(q+1)}Sec\left(\frac{q+1}{2}\pi\right).\Delta^a.p^q$ (IV, 280).

26) $\int Cos\left\{2qx+(b-a+1)\frac{\pi}{2}\right\}.Sin^a x\frac{dx}{x^{b+1}}=\frac{\pi}{2^a 1^{b/1}}\sum_0^\infty(-1)^n\binom{a}{n}(a-2q-2n)^b$ $[a^2>4q^2]$ (IV, 280).

27) $\int\left\{Cos\left[\frac{1}{2}(r+1)\pi+2(p+q)x\right]+Cos\left[\frac{1}{2}(r+1)\pi+2(p-q)x\right]\right\}\frac{dx}{x^{r+1}}=0$ $[p>q]$, $=2^r\pi\frac{(q-p)^r}{\Gamma(r+1)}$ $[p<q]$ (IV, 279).

28) $\int\left(\frac{Sin\,x}{x}\right)^a.Cos(bx\sqrt{a})\,dx=\frac{\pi}{2^a 1^{a/1}}\sum_0^\infty(-1)^n\binom{a}{n}(a+b\sqrt{a}-2n)^{a-1}$ (IV, 280).

F. Alg. rat. fract. à dén. q^a+x^a; Circ. Dir. en num. à un fact. TABLE 160. Lim. 0 et ∞.

1) $\int Sin\,px\frac{dx}{q+x}=Sin\,pq.Ci(pq)+Cos\,pq.\left\{\frac{1}{2}\pi-Si(pq)\right\}$ (VIII, 289).

2) $\int Cos\,px\frac{dx}{q+x}=-Cos\,pq.Ci(pq)+Sin\,pq.\left\{\frac{1}{2}\pi-Si(pq)\right\}$ (VIII, 289).

3) $\int Sin\,px\frac{dx}{q^2+x^2}=\frac{1}{2q}\left\{e^{-pq}Ei(pq)-e^{pq}Ei(-pq)\right\}$ (VIII, 448).

4) $\int Sin\,px\frac{x\,dx}{q^2+x^2}=\frac{1}{2}\pi e^{-pq}$ (VIII, 519).

5) $\int Cos\,px\frac{dx}{q^2+x^2}=\frac{\pi}{2q}e^{-pq}$ (VIII, 519).

6) $\int Cos\,px\frac{x\,dx}{q^2+x^2}=-\frac{1}{2}\left\{e^{pq}Ei(-pq)+e^{-pq}Ei(pq)\right\}$ (VIII, 448).

7) $\int Cos\,px\frac{x^2\,dx}{q^2+x^2}=\infty$ (IV, 284*) $=$

8) $\int Tg\,px\frac{x\,dx}{q^2+x^2}$ (VIII, 564).

9) $\int Cot\,px\frac{x\,dx}{q^2+x^2}=\infty$ (VIII, 564).

10) $\int Sin^2 px\frac{dx}{q^2+x^2}=\frac{\pi}{4q}(1-e^{-2pq})$ (VIII, 333).

11) $\int Cos^2 px\frac{dx}{q^2+x^2}=\frac{\pi}{4q}(1+e^{-2pq})$ (VIII, 333).

12) $\int Sin^{2a}x\frac{dx}{q^2+x^2}=\frac{(-1)^a}{2^{2a+1}}\frac{\pi}{q}\left\{(e^q-e^{-q})^{2a}-e^{2aq}\sum_0^a(-1)^n\binom{2a}{n}e^{-2nq}+\right.$ $\left.+e^{-2aq}\sum_0^a(-1)^n\binom{2a}{n}e^{nq}\right\}$ (V, 40).

13) $\int Sin^{2a} x \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+1}} \Big\{ e^{-2aq} \sum_0^{2a} (-1)^n \binom{2a}{n} e^{2nq} Ei\{2q(a-n)\} +$

$+ e^{2aq} \sum_0^{2a} (-1)^n \binom{2a}{n} e^{-2nq} Ei\{2q(n-a)\} \Big\}$ (V, 49).

14) $\int Sin^{2a+1} x \frac{dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+2} q} \Big\{ e^{(2a+1)q} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n} e^{-2nq} Ei\{q(2n-2a-1)\} +$

$+ e^{-(2a+1)q} \sum_0^{2a+1} (-1)^{n-1} \binom{2a+1}{n} e^{2nq} Ei\{q(2a+1-2n)\} \Big\}$ (V, 38).

15) $\int Sin^{2a+1} x \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+2}} e^{-(2a+1)q} \Big\{ (1-e^{(2a+1)2q})(1-e^{-2q})^{2a+1} -$

$- 2 \sum_0^a (-1)^n \binom{2a+1}{n} e^{2nq} \Big\}$ (V, 52).

16) $\int Cos^{2a} x \frac{dx}{q^2+x^2} = \frac{1}{2^{2a+1}} \frac{\pi}{q} \binom{2a}{a} + 2^{-2a} \frac{\pi}{q} \sum_1^a \binom{2a}{n+a} e^{-2nq}$ (V, 22).

17) $\int Cos^{2a-1} x \frac{dx}{q^2+x^2} = \frac{1}{2^{2a-1}} \frac{\pi}{q} \sum_1^{a-1} \binom{2a-1}{n+a} e^{-(2n+1)q}$ (V, 22).

18) $\int Cos^a x \frac{x\,dx}{q^2+x^2} = \frac{-1}{2^{a+1}} e^{-aq} \sum_0^a \binom{a}{n} e^{2nq} Ei\{q(a-2n)\} - \frac{1}{2^{a+1}} e^{aq} \sum_0^a \binom{a}{n} e^{-2nq} Ei\{q(2n-a)\}$

(V, 26).

19) $\int Tg^r px \frac{dx}{q^2+x^2} = \frac{\pi}{2q} Sec \frac{1}{2} r\pi . \left(\frac{e^{pq}-e^{-pq}}{e^{pq}+e^{-pq}}\right)^r (r^2 < 1)$ Cauchy, C. R. 23. 275.

20) $\int Sin \left(\frac{1}{2} r\pi - px\right) \frac{x^{r-1}\,dx}{q^2+x^2} = \frac{1}{2} \pi q^{r-2} e^{-pq} [r < 2]$ (VIII, 676).

21) $\int Cos \left(\frac{1}{2} r\pi - px\right) \frac{x^r\,dx}{q^2+x^2} = \frac{1}{2} \pi q^{r-1} e^{-pq} [r^2 < 1]$ (VIII, 676*).

22) $\int Sin (p\, Tg\, x) \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2} \left(e^{-p \frac{e^q-e^{-q}}{e^q+e^{-q}}} - e^{-p}\right)$ (VIII, 421).

23) $\int Sin\, 2px \frac{x\,dx}{q^4+x^4} = \frac{\pi}{2q^2} e^{-pq\sqrt{2}} Sin(pq\sqrt{2})$ (VIII, 527).

24) $\int Sin\, 2px \frac{x^3\,dx}{q^4+x^4} = \frac{\pi}{2} e^{-pq\sqrt{2}} Cos(pq\sqrt{2})$ (VIII, 527).

25) $\int Cos\, 2px \frac{dx}{q^4+x^4} = \frac{\pi\sqrt{2}}{4q^3} e^{-pq\sqrt{2}} \{Cos(pq\sqrt{2}) + Sin(pq\sqrt{2})\}$ (VIII, 527).

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26) $\int Cos\, 2px \frac{x^2\, dx}{q^4 + x^4} = \frac{\pi \sqrt{2}}{4q} e^{-pq\sqrt{2}} \left\{ Cos(pq\sqrt{2}) - Sin(pq\sqrt{2}) \right\}$ (VIII, 527).

27) $\int Sin\, px \frac{x\, dx}{1 + x^{2a}} = \frac{\pi}{2a} e^{-p} - \frac{\pi}{a} \sum_1^{\frac{1}{2}(a-1)} e^{-p\, Cos \frac{n\pi}{a}} Cos \left\{ \frac{2n\pi}{a} - p\, Sin \frac{n\pi}{a} \right\} \left[\begin{matrix} a \\ \text{impair} \end{matrix} \right], =$

$= \frac{\pi}{a} \sum_1^{\frac{1}{2}a-1} e^{-p\, Cos\left(\frac{2n+1}{2a}\pi\right)} Cos \left\{ \frac{2n+1}{a}\pi - p\, Sin \left(\frac{2n+1}{2a} \right) \pi \right\} \left[\begin{matrix} a \\ \text{pair} \end{matrix} \right]$ (IV, 288*).

28) $\int Cos\, px \frac{dx}{1 + x^{2a}} = \frac{\pi}{2a} e^{-p} - \frac{\pi}{a} \sum_1^{\frac{1}{2}(a-1)} e^{-p\, Cos \frac{n\pi}{a}} Cos \left\{ \frac{n\pi}{a} - p\, Sin \frac{n\pi}{a} \right\} \left[\begin{matrix} a \\ \text{impair} \end{matrix} \right], =$

$= \frac{\pi}{a} \sum_1^{\frac{1}{2}a-1} e^{-p\, Cos\left(\frac{2n+1}{2a}\pi\right)} Cos \left\{ \frac{2n+1}{2a}\pi - p\, Sin \left(\frac{2n+1}{2a} \pi \right) \right\} \left[\begin{matrix} a \\ \text{pair} \end{matrix} \right]$ (IV, 288).

29) $\int Cos\, px . x^{b-1} \frac{dx}{q^a + x^a} = \frac{\pi}{a q^{a-b}} \sum_1^{\frac{1}{2}a} e^{-pq\, Sin\left(\frac{2n-1}{a}\pi\right)} Sin \left\{ \frac{2n-1}{a} b\pi + pq\, Cos \left(\frac{2n-1}{a} \pi \right) \right\}$

$[a \text{ pair}, b \text{ impair}, b < a+1], = 0 \left[\begin{matrix} b \\ \text{pair} \end{matrix} \right]$ (IV, 288).

30) $\int Sin(p\pi - r^a x^a) \frac{dx}{q^2 + x^{2a}} = \frac{1}{2} e^{-qr^a} q^{2(p-1)} p\pi (1 + Cot\, p\pi)$ (IV, 288).

F. Alg. rat. fract. à dén. $q^a - x^a$; Circ. Dir. en num. à un facteur. TABLE 161. Lim. 0 et ∞.

1) $\int Sin\, px \frac{dx}{q - x} = Sin\, pq . Ci(pq) - Cos\, pq . \left\{ \frac{1}{2}\pi + Si(pq) \right\}$ (VIII, 327).

2) $\int Cos\, px \frac{dx}{q - x} = Cos\, pq . Ci(pq) + Sin\, pq . \left\{ \frac{1}{2}\pi + Si(pq) \right\}$ (VIII, 327).

3) $\int Sin\, px \frac{dx}{q^2 - x^2} = \frac{1}{q} \left\{ Ci(pq) . Sin\, pq - Si(pq) . Cos\, pq \right\}$ (VIII, 327).

4) $\int Sin\, px \frac{x\, dx}{q^2 - x^2} = -\frac{1}{2}\pi\, Cos\, pq$ (VIII, 326).

5) $\int Cos\, px \frac{dx}{q^2 - x^2} = \frac{\pi}{2q} Sin\, pq$ (VIII, 326).

6) $\int Cos\, px \frac{x\, dx}{q^2 - x^2} = Ci(pq) . Cos\, pq + Si(pq) . Sin\, pq$ (VIII, 327).

7) $\int Tg\, px \frac{x\, dx}{q^2 - x^2} = \infty =$ 8) $\int Cot\, px \frac{x\, dx}{q^2 - x^2}$ (VIII, 564).

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9) $\int Cosec\, px \frac{x\,dx}{q^2 - x^2} = \infty$ (VIII, 564).

10) $\int Cos^2 px \frac{dx}{q^2 - x^2} = \frac{\pi}{4q} Sin\, 2pq$ (IV, 286).

11) $\int Sin\left(\frac{1}{2} r\pi - px\right) \frac{x^{r-1}\,dx}{q^2 - x^2} = -\frac{1}{2}\pi q^{r-2} Cos\left(\frac{1}{2} r\pi - pq\right)$ (VIII, 676).

12) $\int Sin\, px \frac{dx}{q^4 - x^4} = \frac{1}{4q^3}\{2\, Ci(pq) . Sin\, pq - 2\, Si(pq) . Cos\, pq + e^{-pq} Ei(pq) - e^{pq} Ei(-pq)\}$
V. T. 160, N. 3 et T. 161, N. 3.

13) $\int Sin\, px \frac{x\,dx}{q^4 - x^4} = \frac{\pi}{4q^2}(e^{-pq} - Cos\, pq)$ V. T. 160, N. 4 et T. 161, N. 4.

14) $\int Sin\, px \frac{x^2\,dx}{q^4 - x^4} = \frac{1}{4q}\{2\, Ci(pq) . Sin\, pq - 2\, Si(pq) . Cos\, pq - e^{-pq} Ei(pq) + e^{pq} Ei(-pq)\}$
V. T. 160, N. 3 et T. 161, N. 3.

15) $\int Sin\, px \frac{x^3\,dx}{q^4 - x^4} = -\frac{\pi}{4}(e^{-pq} + Cos\, pq)$ V. T. 160, N. 4 et T. 161, N. 4.

16) $\int Cos\, px \frac{dx}{q^4 - x^4} = \frac{\pi}{4q^3}(e^{-pq} + Sin\, pq)$ V. T. 160, N. 5 et T. 161, N. 5.

17) $\int Cos\, px \frac{x\,dx}{q^4 - x^4} = \frac{1}{4q^2}\{2\, Ci(pq) . Cos\, pq + 2\, Si(pq) . Sin\, pq - e^{-pq} Ei(pq) - e^{pq} Ei(-pq)\}$
V. T. 160, N. 6 et T. 161, N. 6.

18) $\int Cos\, px \frac{x^2\,dx}{q^4 - x^4} = \frac{\pi}{4q}(Sin\, pq - e^{-pq})$ V. T. 160, N. 5 et T. 161, N. 5.

19) $\int Cos\, px \frac{x^3\,dx}{q^4 - x^4} = \frac{1}{4}\{2\, Ci(pq) . Cos\, pq + 2\, Si(pq) . Sin\, pq + e^{-pq} Ei(pq) + e^{pq} Ei(-pq)\}$
V. T. 160, N. 6 et T. 161, N. 6.

20) $\int Cos\, px . x^{b-1} \frac{dx}{q^a - x^a} = \frac{\pi}{a q^{a-b}} \sum_0^{\frac{1}{2}a-1} e^{-pq\, Sin \frac{2n\pi}{a}} Sin\left(\frac{2nb\pi}{a} + pq\, Cos \frac{2n\pi}{a}\right)$ (IV, 288).

21) $\int \{Cos(px^2) - Sin(px^2)\} \frac{dx}{1 - x^4} = \frac{1}{4}\pi(Sin\, p + Cos\, p)$ (IV, 288).

F. Alg. rat. fract. à dén. $q^2 + x^2$; Circ. Dir. en num. a un fact. $Sin^a x$ et un autre. TABLE 162. Lim. 0 et ∞.

1) $\int Sin\, px . Sin\, rx \frac{dx}{q^2 + x^2} = \frac{\pi}{4q} e^{-pq}(e^{rq} - e^{-rq})\ [0 < r \leqq p]$ (VIII, 333).

2) $\int Sin\, px . Sin\, rx \frac{x\,dx}{q^2 + x^2} = \frac{1}{4} e^{pq}\{e^{rq} Ei[-q(p+r)] - e^{-rq} Ei[q(r-p)]\} - \frac{1}{4} e^{-pq}$
$\{e^{rq} Ei[q(p-r)] - e^{-rq} Ei[q(p+r)]\}\ [p \lesseqgtr r], = \infty\ [p = r]$ (VIII, 334).

3) $\int Sin\,px\,.\,Cos\,rx\,\frac{dx}{q^2+x^2} = \frac{1}{4q}e^{-pq}\left\{e^{rq}Ei[q(p-r)]+e^{-rq}Ei[q(r+p)]\right\}-\frac{1}{4q}e^{pq}$
$\left\{e^{rq}Ei[-q(p+r)]+e^{-rq}Ei[q(r-p)]\right\}$ (VIII, 334).

4) $\int Sin\,px\,.\,Cos\,rx\,\frac{x\,dx}{q^2+x^2} = \frac{\pi}{4}e^{-pq}(e^{rq}+e^{-rq})\,[0<r<p], = \frac{1}{4}\pi e^{-2pq}\,[r=p], =$
$= \frac{1}{4}\pi e^{-rq}(e^{-pq}-e^{pq})\,[p<r<\infty]$ (VIII, 333).

5) $\int Sin\,px\,.\,Cos^2 rx\,\frac{x\,dx}{q^2+x^2} = \frac{\pi}{8}\left\{2e^{-pq}+e^{-q(p+2r)}+e^{q(2r-p)}\right\}[p>2r], = \frac{\pi}{8}\left\{\text{[illegible]}+2e^{-pq}\right\}$
$[p=2r], = \frac{\pi}{8}\left\{2e^{-pq}+e^{-q(p+2r)}-e^{q(p-2r)}\right\}[p<2r]$ V. T. 160, N. 4, 15.

6) $\int Sin^2 px\,.\,Cos^2 rx\,\frac{dx}{q^2+x^2} = \frac{\pi}{8q}\left\{1-\frac{1}{2}e^{-2q(p+r)}+e^{-2qr}-\frac{1}{2}e^{2q(r-p)}-e^{-2pq}\right\}[p>r], =$
$= \frac{\pi}{16q}(1-e^{-4pq})\,[p=r], = \frac{\pi}{8q}\left\{1-\frac{1}{2}e^{-2q(p+r)}+e^{-2qr}-\frac{1}{2}e^{2q(p-r)}-e^{-2pq}\right\}[p<r]$
V. T. 160, N. 10, 12.

7) $\int Sin\,2srx\,.\,Cot\,rx\,\frac{dx}{q^2+x^2} = \frac{\pi}{2q}(1-e^{-2sqr})\frac{1+e^{-2qr}}{1-e^{-2qr}}$ (H, 83).

8) $\int Sin^2 srx\,.\,Cot\,rx\,\frac{x\,dx}{q^2+x^2} = \frac{\pi}{4}\,\frac{2e^{-2qr}-e^{-2sqr}-e^{-(s+1)2qr}}{1-e^{-2qr}}$ (H, 84).

9) $\int Sin\,4srx\,.\,Tg\,rx\,\frac{dx}{q^2+x^2} = -\frac{\pi}{2q}(1-e^{-4sqr})\frac{1-e^{-2qr}}{1+e^{-2qr}}$ (H, 87).

10) $\int Sin^2 2srx\,.\,Tg\,rx\,\frac{x\,dx}{q^2+x^2} = \frac{\pi}{4}\,\frac{2e^{-2qr}+e^{-4sqr}-e^{-(2s+1)2qr}}{1+e^{-2qr}}$ (H, 87).

11) $\int Sin^{2a-1}x\,.\,Sin\{(2a-1)x\}\,\frac{dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a}}\,\frac{\pi}{q}(1-e^{-2q})^{2a-1}$ (V, 31*).

12) $\int Sin^{2a-1}x\,.\,Sin\{(2a+1)x\}\,\frac{dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a}}\,\frac{\pi}{q}e^{-2q}(1-e^{-2q})^{2a-1}$ (V, 33).

13) $\int Sin^{2a}x\,.\,Sin\{(2a-1)x\}\,\frac{x\,dx}{q^2+x^2} = \frac{(-1)^a\pi}{2^{2a+1}}e^{q}\left\{(1-e^{-2q})^{2a}-1\right\}$ (V, 54).

14) $\int Sin^{2a}x\,.\,Sin\,2ax\,\frac{x\,dx}{q^2+x^2} = \frac{(-1)^a\pi}{2^{2a+1}}\left\{(1-e^{-2q})^{2a}-1\right\}$ (V, 32).

15) $\int Sin^{2a}x\,.\,Sin\{(2a+2)x\}\,\frac{x\,dx}{q^2+x^2} = \frac{(-1)^a\pi}{2^{2a+1}}e^{-2q}(1-e^{-2q})^{2a}$ (V, 33).

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16) $\int Sin^{2a} x . Sin\, 4ax \frac{x\,dx}{q^2+x^2} = \frac{(-1)^a \pi}{2^{2a+1}} e^{-2aq} (1-e^{-2q})^{2a}$ (V, 51).

17) $\int Sin^{2a+1} x . Sin\, 2ax \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+2}} \frac{\pi}{q} (e^q - e^{-q}) \{(1-e^{-2q})^{2a} - 1\}$ (V, 42).

18) $\int Sin^{2a+1} x . Sin \{(2a+1)3x\} \frac{dx}{q^2+x^2} = \frac{(-1)^a \pi}{2^{2a+2} q} e^{-3(2a+1)q} (1-e^{-2q})^{2a+1}$ (V, 40).

19) $\int Sin^{2a} x . Sin\, rx \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+1} q} \left\{ e^{(2a-r)q} \cdot \sum_0^{2a} (-1)^n \binom{2a}{n} e^{-2nq} Ei[q(r-2a+2n)] + \right.$

$\left. + e^{(r-2a)q} \sum_0^{2a} (-1)^{n-1} \binom{2a}{n} e^{2nq} Ei[q(2a-r-2n)] \right\}$ (V, 37).

20) $\int Sin^{2a} x . Sin\, rx \frac{x\,dx}{q^2+x^2} = \frac{(-1)^a \pi}{2^{2a+1}} e^{-rq} (e^q - e^{-q})^{2a} [r > 2a], = \frac{(-1)^a \pi}{2^{2a+1}} \left\{ e^{-rq}(e^q-e^{-q})^{2a} - \right.$

$\left. - e^{(2a-r)q} \sum_0^{d-1} (-1)^n \binom{2a}{n} e^{-2nq} - e^{(r-2a)q} \sum_0^{d} (-1)^n \binom{2a}{n} e^{2nq} \right\} \left[\begin{matrix} r<2a, \\ \text{entier} \end{matrix}\right], =$

$= \frac{(-1)^a \pi}{2^{2a+1}} \left\{ e^{-rq}(e^q-e^{-q})^{2a} - e^{(2a-r)q} \sum_0^{d} (-1)^n \binom{2a}{n} e^{-2nq} - e^{(r-2a)q} \sum_0^{d} (-1)^n \right.$

$\left. \binom{2a}{n} e^{2nq} \right\} \left[\begin{matrix} r<2a, \\ \text{fractionn.} \end{matrix}\right]; \left[d = \mathcal{E}\left(a - \frac{1}{2} r\right) \right]$ (V, 53).

21) $\int Sin^{2a+1} x . Sin\, rx \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+2}} \frac{\pi}{q} e^{-rq} (e^q - e^{-q})^{2a+1} [r > 2a+1], = \frac{(-1)^a}{2^{2a+2}} \frac{\pi}{q}$

$\left\{ e^{-rq} (e^q - e^{-q})^{2a+1} - e^{(2a+1-r)q} \sum_0^{d} (-1)^n \binom{2a+1}{n} e^{-2nq} + e^{(r-2a-1)q} \right.$

$\left. \sum_0 (-1)^n \binom{2a+1}{n} e^{2nq} \right\} \left[r < 2a+1, d = \mathcal{E} \frac{1}{2} (2a+1-r) \right]$ (V, 42).

22) $\int Sin^{2a+1} x . Sin\, rx \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+2}} \left\{ e^{(r-2a-1)q} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n} e^{2nq} Ei[q(2a+1-2n-r)] + \right.$

$\left. + e^{(2a+1-r)q} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n} e^{-2nq} Ei[q(2n-2a-1+r)] \right\}$ (V, 48).

23) $\int Sin^{2a-1} x . Cos \{(2a-1)x\} \frac{x\,dx}{q^2+x^2} = \frac{(-1)^a \pi}{2^{2a}} \{(1-e^{-2q})^{2a-1} - 1\}$ (V, 32*).

24) $\int Sin^{2a-1} x . Cos \{(2a+1)x\} \frac{x\,dx}{q^2+x^2} = \frac{(-1)^a \pi}{2^{2a}} e^{-2q} (1-e^{-2q})^{2a-1}$ (V, 33).

25) $\int Sin^{2a} x . Cos \{(2a-1)x\} \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+1}} \frac{\pi}{q} (e^q - e^{-q}) \{(1-e^{-2q})^{2a-1} - 1\}$ (V, 42).

26) $\int Sin^{2a} x . Cos\, 2ax \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+1}} \frac{\pi}{q} (1-e^{-2q})^{2a}$ (V, 31).

27) $\int Sin^{2a} x . Cos\{(2a+2)x\} \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+1}} \frac{\pi}{q} e^{-2q} (1-e^{-2q})^{2a}$ (V, 32).

28) $\int Sin^{2a} x . Cos\, 4ax \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+1}} \frac{\pi}{q} e^{-2aq} (1-e^{-2q})^{2a}$ (V, 40).

29) $\int Sin^{2a+1} x . Cos\, 2ax \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}\pi}{2^{2a+2}} e^{-q} \{(1-e^{-2q})^{2a+1} - 1\}$ (V, 54).

30) $\int Sin^{2a+1} x . Cos\{(2a+1)2x\} \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}\pi}{2^{2a+2}} e^{-(2a+1)q} (1-e^{-2q})^{2a+1}$ (V, 51).

31) $\int Sin^{2a} x . Cos\, rx \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+1}} \frac{\pi}{q} e^{-rq} (e^q - e^{-q})^{2a} [r > 2a], = \frac{(-1)^a}{2^{2a+1}} \frac{\pi}{q} \Big\{ e^{-rq} (e^q - e^{-q})^{2a} -$

$- e^{(2a-r)q} \sum_0^d (-1)^n \binom{2a}{n} e^{-2nq} + e^{(r-2a)q} \sum_0^d (-1)^n \binom{2a}{n} e^{2nq} \Big\} \Big[r < 2a, d = \mathcal{E}\Big(a - \frac{1}{2} r\Big)\Big]$

(V, 42).

32) $\int Sin^{2a} x . Cos\, rx \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+1}} \Big\{ e^{(r-2a)q} \sum_0^{2a} (-1)^n \binom{2a}{n} e^{2nq} Ei[q(2a-2n-r)] +$

$+ e^{(2a-r)q} \sum_0^{2a} (-1)^{n-1} \binom{2a}{n} e^{-2nq} Ei[q(2n-2a+r)] \Big\}$ (V, 48).

33) $\int Sin^{2a+1} x . Cos\, rx \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+2} q} \Big\{ e^{(2a+1-r)q} \sum_0^{2a+1} (-1)^{n+1} \binom{2a+1}{n} e^{-2nq}$

$Ei[q(r-2a-1+2n)] + e^{(r-2a-1)q} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n} e^{2nq} Ei[q(2a+1-r-2n)] \Big\}$ (V, 37).

34) $\int Sin^{2a+1} x . Cos\, rx \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}\pi}{2^{2a+2}} e^{-rq} (e^q - e^{-q})^{2a+1} [r > 2a+1], = \frac{(-1)^{a-1}\pi}{2^{2a+2}}$

$\Big\{ e^{-rq} (e^q - e^{-q})^{2a+1} - e^{(2a+1-r)q} \sum_0^{d-1} (-1)^n \binom{2a+1}{n} e^{-2nq} - e^{(r-2a-1)q} \sum_0^d (-1)^n$

$\binom{2a+1}{n} e^{2nq} \Big\} \Big[\begin{matrix} r < 2a+1, \\ \text{entier} \end{matrix} \Big], = \frac{(-1)^{a-1}\pi}{2^{2a+2}} \Big\{ e^{-rq} (e^q - e^{-q})^{2a+1} - e^{(2a+1-r)q}$

$\sum_0^d (-1)^n \binom{2a+1}{n} e^{-2nq} - e^{(r-2a-1)q} \sum_0^d (-1)^n \binom{2a+1}{n} e^{2nq} \Big\} \Big[\begin{matrix} r < 2a+1, \\ \text{fractionnaire} \end{matrix} \Big];$

$\Big[d = \mathcal{E} \frac{1}{2} (2a - r + 1) \Big]$ (V, 54).

1) $\int Cos\, px\,.\,Cos\, rx \frac{dx}{q^2+x^2} = \frac{\pi}{2q} e^{-pq}(e^{qr}+e^{-qr})\ [0<r\leqq p]$ (VIII, 333).

2) $\int Cos\, px\,.\,Cos\, rx \frac{x\,dx}{q^2+x^2} = \frac{1}{4} e^{pq}\left\{e^{rq} Ei[-q(p+r)] + e^{-rq} Ei[q(r-p)]\right\} - \frac{1}{4} e^{-pq}$

$\left\{e^{rq} Ei[q(p-r)] + e^{-rq} Ei[q(p+r)]\right\} [p \gtrless r], = \infty\ [p=r]$ (VIII, 334).

3) $\int Cos(p\, Tg^2 x)\,.\,Cos\, x \frac{dx}{q^2+x^2} = \frac{\pi}{2q}\left\{\frac{1}{2}(e^q+e^{-q}) e^{-p\frac{e^q-e^{-q}}{e^q+e^{-q}}} - \frac{1}{2}(e^q-e^{-q}) e^{-p}\right\}$ (VIII, 420*).

4) $\int Cos(p\, Tg^2 x)\,.\,Tg\, x \frac{x\,dx}{q^2+x^2} = \frac{\pi}{e^q+e^{-q}}\left\{\frac{1}{2}(e^q+e^{-q}) e^{-p} - \frac{1}{2}(e^q-e^{-q}) e^{-p\frac{e^q-e^{-q}}{e^q+e^{-q}}}\right\}$

(VIII, 421*).

5) $\int Cos(p\, Tg^2 x)\,.\,Cot\, x \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2}\left\{\frac{e^q+e^{-q}}{e^q-e^{-q}} e^{-p\frac{e^q-e^{-q}}{e^q+e^{-q}}} - e^{-p}\right\}$ (VIII, 421*).

6) $\int Cos^{a-1} x\,.\,Sin\{(a+1)x\} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^a} e^{-2q}(1+e^{-2q})^{a-1}$ (V, 18).

7) $\int Cos^a x\,.\,Sin\{(a-1)x\} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{a+1}} e^{q}(1+e^{-2q})^{a}$ (V, 29).

8) $\int Cos^a x\,.\,Sin\, ax \frac{dx}{q^2+x^2} = \frac{1}{2^{a+1} q} \sum_1^a \binom{a}{n} \left\{e^{-2nq} Ei(2nq) - e^{2nq} Ei(-2nq)\right\}$ (V, 17).

9) $\int Cos^a sx\,.\,Sin\, asx \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{a+1}}\left\{(1+e^{-2qs})^a - 1\right\}$ (VIII, 496).

10) $\int Cos^a x\,.\,Sin\{(a+1)x\} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{a+1}} e^{-q}(1+e^{-2q})^{a}$ (V, 29).

11) $\int Cos^a x\,.\,Sin\, 3ax \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{a+1}} e^{-2aq}(1+e^{-2q})^{a}$ (V, 27).

12) $\int Cos^a x\,.\,Sin\, rx \frac{dx}{q^2+x^2} = \frac{1}{2^{a+1} q}\left\{e^{(a-r)q} \sum_0^a \binom{a}{n} e^{-2nq} Ei[q(r-a+2n)] - e^{(r-a)q}\right.$

$\left.\sum_0^a \binom{a}{n} e^{2nq} Ei[q(a-r-2n)]\right\}$ (V, 20).

13) $\int Cos^a sx\,.\,Sin\, rx \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{a+1}} e^{-rq}(e^{qs}+e^{-qs})^a\ [r>as], = \frac{\pi}{2^{a+1}}\left\{e^{-rq}(e^{qs}+e^{-qs})^a - \right.$

$$-e^{(as-r)q}\sum_0^{d-1}\binom{a}{n}e^{-2nqs}-e^{(r-as)q}\sum_0^{d}\binom{a}{n}e^{2nqs}\Big\}\left[\frac{r}{s}<a, \text{entier}\right], =\frac{\pi}{2^{a+1}}\Big\{e^{-rq}(e^{qs}+$$
$$+e^{-qs})^a-e^{(as-r)q}\sum_0^{d}\binom{a}{n}e^{-2nqs}-e^{(r-as)q}\sum_0^{d}\binom{a}{n}e^{2nqs}\Big\}\left[\frac{r}{s}<a, \text{fract.}\right];\left[d=\mathcal{E}\,\frac{as-r}{2s}\right]$$
(VIII, 497).

14) $\int Cos^{a-1}x \,.\, Cos\{(a+1)x\}\frac{dx}{q^2+x^2}=\frac{\pi}{2^a q}e^{-2q}(1+e^{-2q})^{a-1}$ (V, 18).

15) $\int Cos^a x \,.\, Cos\{(a-1)x\}\frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+1}q}e^{q}(1+e^{-2q})^a$ (V, 23).

16) $\int Cos^a sx \,.\, Cos\,asx\frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+1}q}(1+e^{-2qs})^a$ (VIII, 495).

17) $\int Cos^a x \,.\, Cos\{(a+1)x\}\frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+1}q}e^{-q}(1+e^{-2q})^a$ (V, 22).

18) $\int Cos^a sx \,.\, Cos\,rx\frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+1}q}e^{-rq}(e^{qs}+e^{-qs})^a\,[r>as], =\frac{\pi}{2^{a+1}q}\Big\{e^{-rq}(e^{qs}+e^{-qs})^a-$
$$-e^{(as-r)q}\sum_0^{d}\binom{a}{n}e^{-2nqs}+e^{(r-as)q}\sum_0^{d}\binom{a}{n}e^{2nqs}\Big\}\left[r<as, d=\mathcal{E}\,\frac{as-r}{2s}\right]$$ (VIII, 496).

19) $\int Cos^a x \,.\, Cos\,rx\frac{x\,dx}{q^2+x^2}=\frac{-1}{2^{a+1}}\Big\{e^{(r-a)q}\sum_0^{a}\binom{a}{n}e^{2nq}\,Ei[q(a-r-2n)]+e^{(a-r)q}\sum_0^{a}\binom{a}{n}$
$$e^{-2nq}\,Ei[q(r-a+2n)]\Big\}$$ (V, 26).

1) $\int Sin^{2a}x \,.\, Sin\,2ax \,.\, Sin\,px\frac{dx}{q^2+x^2}=\frac{(-1)^a}{2^{2a+2}}\frac{\pi}{q}e^{-pq}(e^{4aq}-1)(1-e^{-2q})^{2a}\,[p\geqq 4a], =$
$$=\frac{(-1)^a\pi}{2^{2a+2}}\frac{\pi}{q}\Big\{(e^{pq}-e^{-pq})(1-e^{-2q})^{2a}-e^{pq}\sum_0^{d}(-1)^n\binom{2a}{n}e^{-2nq}+e^{-pq}\sum_0^{d}(-1)^n$$
$$\binom{2a}{n}e^{2nq}\Big\}\left[p<4a, d=\mathcal{E}\,\frac{1}{2}p\right]$$ (V, 34).

2) $\int Sin^{2a+1}x \,.\, Sin\{(2a+1)x\} \,.\, Cos\,px\frac{dx}{q^2+x^2}=\frac{(-1)^{a-1}}{2^{2a+3}}\frac{\pi}{q}e^{-pq}(e^{(2a+1)2q}-1)(1-e^{-2q})^{2a+1}$
$$[p\geqq 4a+2], =\frac{(-1)^a}{2^{2a+3}}\frac{\pi}{q}\Big\{(e^{pq}+e^{-pq})(1-e^{-2q})^{2a+1}-e^{pq}\sum_0^{d}(-1)^n\binom{2a+1}{n}$$
$$e^{-2nq}+e^{-pq}\sum_0^{d}(-1)^n\binom{2a+1}{n}e^{2nq}\Big\}\left[p<4a+2, d=\mathcal{E}\,\frac{1}{2}p\right]$$ (V, 35).

3) $\int Sin^{2a+1}x . Cos\{(2a+1)x\} . Sin px \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+2}} \frac{\pi}{q} e^{-pq}(e^{(2a+1)2q}+1)(1-e^{-2q})^{2a+1}$ $[p \geqq 4a+2]$, $= \frac{(-1)^{a-1}}{2^{2a+2}} \frac{\pi}{q} \Big\{(e^{pq}-e^{-pq})(1-e^{-2q})^{2a+1} - e^{pq}\sum_0^d (-1)^n \binom{2a+1}{n}$ $e^{-2nq} + e^{-pq}\sum_0^d (-1)^n \binom{2a+1}{n} e^{2nq}\Big\}$ $\Big[p<4a+2, d=\mathcal{E}\frac{1}{2}p\Big]$ (V, 34).

4) $\int Sin^{2a}x . Cos 2ax . Cos px \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+2}} \frac{\pi}{q} e^{-pq}(e^{4aq}+1)(1-e^{-2q})^{2a}$ $[p \geqq 4a]$, $=$ $= \frac{(-1)^a}{2^{2a+2}} \frac{\pi}{q} \Big\{(e^{pq}+e^{-pq})(1-e^{-2q})^{2a} - e^{pq}\sum_0^d (-1)^n \binom{2a}{n} e^{-2nq} + e^{-pq}$ $\sum_0^d (-1)^n \binom{2a}{n} e^{2nq}\Big\}$ $\Big[p<4a, d=\mathcal{E}\frac{1}{2}p\Big]$ (V, 35).

5) $\int Cos^a sx . Sin asx . Sin px \frac{dx}{q^2+x^2} = \frac{\pi}{2^{a+2}q} e^{-pq}(e^{2aqs}-1)(1+e^{-2qs})^a$ $[p \geqq 2as]$, $=$ $= \frac{\pi}{2^{a+2}q} \Big\{(e^{pq}-e^{-pq})(1+e^{-2qs})^a - e^{pq}\sum_0^d \binom{a}{n} e^{-2nqs} + e^{-pq}\sum_0^d \binom{a}{n} e^{2nqs}\Big\}$ $\Big[p<2as, d=\mathcal{E}\frac{p}{2s}\Big]$ (VIII, 496).

6) $\int Cos^a x . Sin ax . Sin px \frac{x\,dx}{q^2+x^2} = \frac{1}{2^{a+2}} e^{pq}\sum_0^a \binom{a}{n} \{e^{2nq} Ei[-q(p+2n)] - e^{-2nq}$ $Ei[q(2n-p)]\} - \frac{1}{2^{a+2}} e^{-pq}\sum_0^a \binom{a}{n} \{e^{2nq} Ei[q(p-2n)] - e^{-2nq} Ei[q(2n+p)]\}$ (V, 24).

7) $\int Cos^a sx . Sin asx . Cos px \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{a+2}} e^{-pq}(1-e^{2aqs})(1+e^{-2qs})^a$ $[p>2as]$, $=$ $= \frac{\pi}{2^{a+2}}\{1-(1-e^{-2aqs})(1+e^{-2qs})^a\}$ $[p=2as]$, $= \frac{\pi}{2^{a+2}}\Big\{(e^{pq}+e^{-pq})(1+e^{-2qs})^a -$ $- e^{pq}\sum_0^{d-1} \binom{a}{n} e^{-2nqs} - e^{-pq}\sum_0^d \binom{a}{n} e^{2nqs}\Big\}$ $\Big[\begin{matrix}p<2as,\\ \text{entier}\end{matrix}\Big]$, $= \frac{\pi}{2^{a+2}}\Big\{(e^{pq}+e^{-pq})$ $(1+e^{-2qs})^a - e^{pq}\sum_0^d \binom{a}{n} e^{-2nqs} - e^{-pq}\sum_0^d \binom{a}{n} e^{2nqs}\Big\}$ $\Big[\begin{matrix}p<2as,\\ \text{fractionn.}\end{matrix}\Big]$; $\Big[d=\mathcal{E}\frac{p}{2s}\Big]$ (VIII, 496).

8) $\int Cos^a sx . Cos asx . Sin px \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{a+2}} e^{-pq}(1+e^{2aqs})(1+e^{-2qs})^a$ $[p>2as]$, $=$ $= \frac{\pi}{2^{a+2}}\{(1+e^{-2aqs})(1+e^{-2qs})^a - 1\}$ $[p=2as]$, $= \frac{\pi}{2^{a+2}}\Big\{(e^{-pq}-e^{pq})(1+e^{-2qs})^a +$ $+ e^{pq}\sum_0^{d-1} \binom{a}{n} e^{-2nqs} + e^{-pq}\sum_0^d \binom{a}{n} e^{2nqs}\Big\}$ $\Big[\begin{matrix}p<2as,\\ \text{entier}\end{matrix}\Big]$, $= \frac{\pi}{2^{a+2}}\Big\{(e^{-pq}-e^{pq})$ $(1+e^{-2qs})^a + e^{pq}\sum_0^d \binom{a}{n} e^{-2nqs} + e^{-pq}\sum_0^d \binom{a}{n} e^{2nqs}\Big\}$ $\Big[\begin{matrix}p<2as,\\ \text{fractionn.}\end{matrix}\Big]$; $\Big[d=\mathcal{E}\frac{p}{2s}\Big]$ (VIII, 495).

9) $\int Cos^a sx \,.\, Cos\, asx \,.\, Cos\, px \frac{dx}{q^2+x^2} = \frac{\pi}{2^{a+1}q} e^{-pq}(1+e^{2asq})(1+e^{-2sq})^a \; [p \geqq 2as], =$

$= \frac{\pi}{2^{a+2}q}\left\{(e^{pq}+e^{-pq})(1+e^{-2sq})^a - e^{pq}\sum_0^d \binom{a}{n} e^{-2nsq} + e^{-pq}\sum_0^d \binom{a}{n} e^{2nsq}\right\}$

$\left[p<2as, d=\mathcal{E}\frac{p}{2s}\right]$ (VIII, 495).

10) $\int Cos^a x \,.\, Cos\, ax \,.\, Cos\, px \frac{x\,dx}{q^2+x^2} = \frac{-1}{2^{a+2}} e^{pq} \sum_0^a \binom{a}{n}\{e^{2nq} Ei[-q(p+2n)] + e^{-2nq}$ $Ei[q(2n-p)]\} - \frac{1}{2^{a+2}} e^{-pq}\sum_0^a\binom{a}{n}\{e^{2nq}Ei[q(p-2n)]+e^{-2nq}Ei[q(p+2n)]\}$ (V, 24).

11) $\int (1-Cos^s rx \,.\, Cos\, srx)\, Tg\, 2rx \frac{x\,dx}{q^2+x^2} = \frac{\pi}{1+e^{-4qr}}\{e^{-4qr}+2^{-s-1}(1-e^{-2qr})(1+e^{-2qr})^{s+1}\}$ (H, 146).

12) $\int Cos^s rx \,.\, Sin\, srx \,.\, Tg\, 2rx \frac{dx}{q^2+x^2} = \frac{\pi}{2q}\frac{1-e^{-4qr}}{1+e^{-4qr}}\{2^{-s}(1+e^{-2qr})^s - 1\}$ (H, 146).

13) $\int (1-Cos^s rx \,.\, Cos\, srx)\, Cot\, 2rx \frac{x\,dx}{q^2+x^2} = \frac{\pi}{1-e^{-4qr}}\{e^{-4qr} - 2^{-s-1}(1+e^{-2qr})$ $(1+e^{-2qr})^s\}$ (H, 146).

14) $\int Cos^s rx \,.\, Sin\, srx \,.\, Cot\, 2rx \frac{dx}{q^2+x^2} = \frac{\pi}{2q}\frac{1+e^{-4qr}}{1-e^{-4qr}}\{1-2^{-s}(1+e^{-2qr})^s\}$ (H, 146).

15) $\int Cos^{s-1} rx \,.\, Sin\{(s+1)rx\} \,.\, Tg\, 2rx \frac{dx}{q^2+x^2} = \frac{\pi}{2^s q}\frac{1-e^{-4qr}}{1+e^{-4qr}}\{e^{-2qr}(1+e^{-2qr})^{s-1} - 2^s\}$ (H, 165).

16) $\int Cos^{s-1} rx \,.\, Cos\{(s+1)rx\} \,.\, Tg\, 2rx \frac{x\,dx}{q^2+x^2} = \frac{-\pi}{e^{2qr}+e^{-2qr}}\{e^{-2qr}+2^{-s}(1-e^{-2qr})$ $(1+e^{-2qr})^s\}$ (H, 165).

17) $\int Cos^{s-1} rx \,.\, Sin\{(s+1)rx\} \,.\, Cot\, 2rx \frac{dx}{q^2+x^2} = \frac{\pi}{2^s q}\frac{1+e^{-4qr}}{1-e^{-4qr}}\{2^{s-1} - (1+e^{-2qr})^{s-1}e^{-2qr}\}$ (H, 165).

18) $\int Cos^{s-1} rx \,.\, Cos\{(s+1)rx\} \,.\, Cot\, 2rx \frac{x\,dx}{q^2+x^2} = \frac{-\pi}{1-e^{-4qr}}\{e^{-4qr}+2^{-s}(1+e^{-4qr})$ $(1+e^{-2qr})^{s-1}\}$ (H, 165).

19) $\int Cos^{p-1} rx \,.\, Sin^{s-1} rx \,.\, Sin\left\{\frac{1}{2} s\pi - (p+s)rx\right\}\frac{dx}{q^2+x^2} = \frac{\pi}{2^{p+s-1}q} e^{-2qr}(1+e^{-2qr})^{p-1}$ $(1-e^{-2qr})^{s-1}$ (H, 150).

20) $\int Cos^{p-1} rx \,.\, Sin^{s-1} rx \,.\, Cos\left\{\frac{1}{2} s\pi - (p+s)rx\right\} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{p+s-1}q} e^{-2qr}(1+e^{-2qr})^{p-1}$
$(1-e^{-2qr})^{s-1}$ (H, 150).

21) $\int Cos^{p-2} rx \,.\, Sin^{s-2} rx \,.\, Sin\left\{(s-1)\frac{1}{2}\pi - (p+s)rx\right\} \frac{dx}{q^2+x^2} = \frac{-\pi}{2^{p+s-3}} e^{-4qr}(1+e^{-2qr})^{p-2}$
$(1-e^{-2qr})^{s-2}$ (H, 168).

22) $\int Cos^{p-2} rx \,.\, Sin^{s-2} rx \,.\, Cos\left\{(s-1)\frac{1}{2}\pi - (p+s)rx\right\} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{p+s-3}} e^{-4qr}(1+e^{-2qr})^{p-2}$
$(1-e^{-2qr})^{s-2}$ (H, 168).

1) $\int Sin^{s} rx \,.\, Sin^{s_1} r_1 x \ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi - (sr+s_1 r_1+\ldots)x\right\} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{1+s+s_1+\ldots}}$
$\{1-(1-e^{-2qr})^{s}(1-e^{-2qr_1})^{s_1}\ldots\}$ (H, 49).

2) $\int Sin^{s} rx \,.\, Sin^{s_1} r_1 x \ldots Cos\left\{(s+s_1+\ldots)\frac{1}{2}\pi - (sr+s_1 r_1+\ldots)x\right\} \frac{dx}{q^2+x^2} = \frac{\pi}{2^{1+s+s_1+\ldots}q}$
$(1-e^{-2qr})^{s}(1-e^{-2qr_1})^{s_1}\ldots$ (H, 49).

3) $\int Cos^{s} rx \,.\, Cos^{s_1} r_1 x \ldots Sin\{(sr+s_1 r_1+\ldots)x\} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{1+s+s_1+\ldots}} \{(1+e^{-2qr})^{s}$
$(1+e^{-2qr_1})^{s_1}\ldots-1\}$ (H, 44).

4) $\int Cos^{s} rx \,.\, Cos^{s_1} r_1 x \ldots Cos\{(sr+s_1 r_1+\ldots)x\} \frac{dx}{q^2+x^2} = \frac{\pi}{2^{1+s+s_1+\ldots}q}(1+e^{-2qr})^{s}$
$(1+e^{-2qr_1})^{s_1}\ldots$ (H, 44).

5) $\int Sin^{s} rx \,.\, Sin^{s_1} r_1 x \ldots Cos^{t} px \,.\, Cos^{t_1} p_1 x \ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi - (pt+p_1 t_1+\ldots+\right.$
$\left.+sr+s_1 r_1+\ldots)x\right\} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{1+s+s_1+\ldots+t+t_1+\ldots}} \{1-(1+e^{-2mp})^{t}(1+e^{-2mp_1})^{t_1}\ldots$
$(1-e^{-2mr})^{s}(1-e^{-2mr_1})^{s_1}\ldots\}$ (H, 54).

6) $\int Sin^{s} rx \,.\, Sin^{s_1} r_1 x \ldots Cos^{t} px \,.\, Cos^{t_1} p_1 x \ldots Cos\left\{(s+s_1+\ldots)\frac{1}{2}\pi - (pt+p_1 t_1+\ldots+\right.$
$\left.+sr+s_1 r_1+\ldots)x\right\} \frac{dx}{q^2+x^2} = \frac{\pi}{2^{1+s+s_1+\ldots+t+t_1+\ldots}q}(1+e^{-2mp})^{t}(1+e^{-2mp_1})^{t_1}\ldots$
$(1-e^{-2mr})^{s}(1-e^{-2mr_1})^{s_1}\ldots$ (H, 54).

7) $\int Sin^s rx . Sin^{s_1} r_1 x \ldots Cos^t px . Cos^{t_1} p_1 x \ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi - ux\right\}\frac{x\,dx}{q^2+x^2} =$
$= \frac{-\pi}{2^{1+s+s_1+\ldots+t+t_1+\ldots}}(e^{pq}+e^{-pq})^t(e^{p_1 q}+e^{-p_1 q})^{t_1}\ldots(e^{qr}-e^{-qr})^s(e^{qr_1}-$
$-e^{-qr_1})^{s_1}\ldots e^{-qu}$ (H, 78).

8) $\int Sin^s rx . Sin^{s_1} r_1 x \ldots Cos^t px . Cos^{t_1} p_1 x \ldots Cos\left\{(s+s_1+\ldots)\frac{1}{2}\pi - ux\right\}\frac{dx}{q^2+x^2} =$
$= \frac{\pi}{2^{1+s+s_1+\ldots+t+t_1+\ldots}q}(e^{pq}+e^{-pq})^t(e^{p_1 q}+e^{-p_1 q})^{t_1}\ldots(e^{qr}-e^{-qr})^s(e^{qr_1}-e^{-qr_1})^{s_1}\ldots e^{-qu}$
(H, 78). Dans 7) et 8) on a $u > sr+s_1 r_1+\ldots+pt+p_1 t_1+\ldots$

9) $\int Cos^p rx . Sin^s rx . Sin\left\{\frac{1}{2}s\pi-(p+s)rx\right\}. Tg\, 2rx \frac{dx}{q^2+x^2} = \frac{-\pi}{2^{p+s+1}q}\frac{1}{1+e^{-4qr}}$
$(1+e^{-2qr})^{p+1}(1-e^{-2qr})^{s+1}$ (H, 149).

10) $\int Cos^p rx . Sin^s rx . Cos\left\{\frac{1}{2}s\pi-(p+s)rx\right\}. Tg\, 2rx \frac{x\,dx}{q^2+x^2} = \frac{-\pi}{2^{p+s+1}}\frac{1}{1+e^{-4qr}}$
$(1+e^{-2qr})^{p+1}(1-e^{-2qr})^{s+1}$ (H, 149).

11) $\int Cos^p rx . Sin^s rx . Sin\left\{\frac{1}{2}s\pi-(p+s)rx\right\}. Cot\, 2rx \frac{dx}{q^2+x^2} = \frac{\pi}{2^{p+s+1}q}(1+e^{-4qr})$
$(1+e^{-2qr})^{p-1}(1-e^{-2qr})^{s-1}$ (H, 150).

12) $\int Cos^p rx . Sin^s rx . Cos\left\{\frac{1}{2}s\pi-(p+s)rx\right\}. Cot\, 2rx \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{p+s+1}}(1+e^{-4qr})$
$(1+e^{-2qr})^{p-1}(1-e^{-2qr})^{s-1}$ (H, 149).

13) $\int Cos^{p-1} rx . Sin^{s-1} rx . Sin\left\{(s-1)\frac{1}{2}\pi-(p+s)rx\right\}. Tg\, 2rx \frac{dx}{q^2+x^2} = \frac{\pi}{2^{p+s-1}q}\frac{1}{e^{2qr}+e^{-2qr}}$
$(1+e^{-2qr})^p(1-e^{-2qr})^s$ (H, 168).

14) $\int Cos^{p-1} rx . Sin^{s-1} rx . Cos\left\{(s-1)\frac{1}{2}\pi-(p+s)rx\right\}. Tg\, 2rx \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{p+s-1}}\frac{1}{e^{2qr}+e^{-2qr}}$
$(1+e^{-2qr})^p(1-e^{-2qr})^s$ (H, 168).

15) $\int Cos^{p-1} rx . Sin^{s-1} rx . Sin\left\{(s-1)\frac{1}{2}\pi-(p+s)rx\right\}. Cot\, 2rx \frac{dx}{q^2+x^2} = \frac{-\pi}{2^{p+s-1}q}(1+e^{-4qr})$
$(1+e^{-2qr})^{p-2}(1-e^{-2qr})^{s-2}e^{-2qr}$ (H, 168).

16) $\int Cos^{p-1} rx . Sin^{s-1} rx . Cos\left\{(s-1)\frac{1}{2}\pi-(p+s)rx\right\}. Cot\, 2rx \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{p+s-1}}(1+e^{-4qr})$
$(1+e^{-2qr})^{p-2}(1-e^{-2qr})^{s-2}e^{-2qr}$ (H, 168).

1) $\int Sin\,px\,.\,Sin\,rx\,\frac{dx}{q^2-x^2}=-\frac{\pi}{2q}Cos\,pq\,.\,Sin\,qr\,[p>r],=-\frac{\pi}{4q}Sin\,2pq\,[p=r],=$
$=-\frac{\pi}{2q}Sin\,pq\,.\,Cos\,qr\,[p<r]$ (VIII, 335).

2) $\int Sin\,px\,.\,Cos\,rx\,\frac{x\,dx}{q^2-x^2}=-\frac{\pi}{2}Cos\,pq\,.\,Cos\,qr\,[p>r],=-\frac{\pi}{4}Cos\,2pq\,[p=r],=$
$=\frac{\pi}{2}Sin\,pq\,.\,Sin\,qr\,[p<r]$ (VIII, 335).

3) $\int Cos\,px\,.\,Cos\,rx\,\frac{dx}{q^2-x^2}=\frac{\pi}{2q}Sin\,pq\,.\,Cos\,qr\,[p>r],=\frac{\pi}{4q}Sin\,2pq\,[p=r],=$
$=\frac{\pi}{2q}Cos\,pq\,.\,Sin\,qr\,[p<r]$ (VIII, 335).

4) $\int Sin\,2srx\,.\,Cot\,rx\,\frac{dx}{q^2-x^2}=\frac{\pi}{q}Sin^2 sqr\,.\,Cot\,qr$ (H, 127).

5) $\int Sin^2 srx\,.\,Cot\,rx\,\frac{x\,dx}{q^2-x^2}=\frac{\pi}{4}(1-Sin\,2sqr\,.\,Cot\,qr)$ (H, 127).

6) $\int Sin\,4srx\,.\,Tg\,rx\,\frac{dx}{q^2-x^2}=\frac{\pi}{q}Sin^2 2sqr\,.\,Tg\,qr$ (H, 129).

7) $\int Sin^2 2srx\,.\,Tg\,rx\,\frac{x\,dx}{q^2-x^2}=-\frac{\pi}{4}(1+Sin\,4sqr\,.\,Tg\,qr)$ (H, 130).

8) $\int Sin^s rx\,.\,Sin\left(\frac{1}{2}s\pi-srx\right)\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\left\{Sin^s qr\,.\,Cos\left(\frac{1}{2}s\pi-sqr\right)-2^{-s}\right\}$ (H, 106).

9) $\int Sin^s rx\,.\,Cos\left(\frac{1}{2}s\pi-srx\right)\frac{dx}{q^2-x^2}=-\frac{\pi}{2q}Sin^s qr\,.\,Sin\left(\frac{1}{2}s\pi-sqr\right)$ (H, 106).

10) $\int Cos^a sx\,.\,Sin\,asx\,\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\{2^{-a}-Cos^a qs\,.\,Cos\,aqs\}$ (VIII, 506).

11) $\int Cos^a sx\,.\,Cos\,asx\,\frac{dx}{q^2-x^2}=\frac{\pi}{2q}Cos^a qs\,.\,Sin\,aqs$ (VIII, 505).

12) $\int Cos^a sx\,.\,Sin\,rx\,\frac{x\,dx}{q^2-x^2}=-\frac{\pi}{2}Cos^a qs\,.\,Cos\,qr\,[r>as],=-\frac{\pi}{2}Cos^a qs\,.\,Cos\,qr+\frac{\pi}{2^{a+1}}$
$[r=as],=-\frac{\pi}{2}Cos^a qs\,.\,Cos\,qr+\frac{\pi}{2^a}\sum_0^d\binom{a}{n}Cos\{(as-2ns-r)q\}\left[\frac{r}{s}<a,\text{ fract.}\right]=$
$=-\frac{\pi}{2}Cos^a qs\,.\,Cos\,qr-\frac{\pi}{2^{a+1}}\binom{a}{d}+\frac{\pi}{2^a}\sum_0^d\binom{a}{n}Cos\{(as-2ns-r)q\}\left[\frac{r}{s}<a,\text{ entier}\right];$
$\left[d=\mathcal{E}\frac{as-r}{2s}\right]$ (VIII, 507).

13) $\int Cos^a sx . Cos rx \frac{dx}{q^2-x^2} = \frac{\pi}{2q} Cos^a qs . Sin qr \, [r \geqq as], = -\frac{\pi}{2q} Cos^a qs . Sin qr + \frac{\pi}{2^a q} \sum_0^d \binom{a}{n}$ $Sin \{(as-2ns-r)q\} \, [r < as]$ (VIII, 506).

14) $\int Cos^a sx . Sin asx . Sin px \frac{dx}{q^2-x^2} = \frac{\pi}{2q} Cos^a qs . Cos pq . Sin aqs \, [p \geqq 2as], = -\frac{\pi}{2} Cos^a qs .$ $Sin pq . Cos aqs - \frac{\pi}{2^{a+1}} \sum_0^d \binom{a}{n} Sin\{(p-2ns)q\} \left[p < 2as, d = \mathcal{E}\frac{p}{2s}\right]$ (VIII, 506).

15) $\int Cos^a sx . Sin asx . Cos px \frac{x\,dx}{q^2-x^2} = \frac{\pi}{2} Cos^a qs . Sin pq . Sin aqs \, [p > 2as], = -\frac{\pi}{2^{a+2}} +$ $+ \frac{\pi}{2} Cos^a qs . Sin pq . Sin aqs \, [p = 2as], = -\frac{\pi}{2} Cos^a qs . Cos pq . Cos aqs + \frac{\pi}{2^{a+1}}$ $\sum_0^d \binom{a}{n} Cos\{(p-2ns)q\} \left[\frac{p}{2s} < a, \text{fract.}\right], = -\frac{\pi}{2} Cos^a qs . Cos pq . Cos aqs - \frac{\pi}{2^{a+1}}\binom{a}{d} +$ $+ \frac{\pi}{2^{a+1}} \sum_0^d \binom{a}{n} Cos\{(p-2ns)q\} \left[\frac{p}{2s} < a, \text{entier}\right]; \left[d = \mathcal{E}\frac{p}{2s}\right]$ (VIII, 506).

16) $\int Cos^a sx . Cos asx . Sin px \frac{x\,dx}{q^2-x^2} = -\frac{\pi}{2} Cos^a qs . Cos pq . Cos aqs \, [p > 2as], = \frac{\pi}{2^{2a+2}} -$ $-\frac{\pi}{2} Cos^a qs . Cos pq . Cos aqs \, [p = 2as], = \frac{\pi}{2} Cos^a qs . Sin pq . Sin aqs - \frac{\pi}{2^{a+1}} \sum_0^d \binom{a}{n}$ $Cos\{(p-2ns)q\} \left[\frac{p}{2s} < a, \text{fract.}\right] = \frac{\pi}{2} Cos^a qs . Sin pq . Sin aqs + \frac{\pi}{2^{a+1}}\binom{a}{d} -$ $-\frac{\pi}{2^{a+1}} \sum_0^d \binom{a}{n} Cos\{(p-2ns)q\} \left[\frac{p}{2s} < a, \text{entier}\right]; \left[d = \mathcal{E}\frac{p}{2s}\right]$ (VIII, 505).

17) $\int Cos^a sx . Cos asx . Cos px \frac{dx}{q^2-x^2} = \frac{\pi}{2q} Cos^a qs . Sin pq . Cos aqs \, [p \geqq 2as], = \frac{\pi}{2q} Cos^a qs .$ $Cos pq . Sin aqs + \frac{\pi}{2^{a+1} q} \sum_0^d \binom{a}{n} Sin\{(p-2ns)q\} \left[p < 2as, d = \mathcal{E}\frac{p}{2s}\right]$ (VIII, 505).

18) $\int Cos^s rx . Sin srx . Tg 2rx \frac{dx}{q^2-x^2} = \frac{\pi}{2q} Tg 2qr . (1 - Cos^s qr . Cos sqr)$ (H, 146).

19) $\int (1 - Cos^s rx . Cos srx) Tg 2rx \frac{x\,dx}{q^2-x^2} = -\frac{\pi}{2}(1 + Tg 2qr . Cos^s qr . Sin sqr)$ (H, 146).

20) $\int Cos^s rx . Sin srx . Cot 2rx \frac{dx}{q^2-x^2} = \frac{\pi}{2q} Cot 2qr . (1 - Cos^s qr . Cos sqr)$ (H, 146).

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21) $\int (1 - Cos^s rx \,.\, Cos\, srx)\, Cot\, 2rx \frac{x\,dx}{q^2 - x^2} = \frac{\pi}{2}(1 - Cot\, 2qr \,.\, Cos^s qr \,.\, Sin\, sqr)$ (H, 146).

22) $\int Cos^{p-1} rx \,.\, Sin^{s-1} rx \,.\, Sin\left\{\frac{1}{2} s\pi - (p+s) rx\right\} \frac{dx}{q^2 - x^2} = \frac{\pi}{2q} Cos^{p-1} qr \,.\, Sin^{s-1} qr \,.$

$Cos\left\{\frac{1}{2} s\pi - (p+s) qr\right\}$ (H, 150).

23) $\int Cos^{p-1} rx \,.\, Sin^{s-1} rx \,.\, Cos\left\{\frac{1}{2} s\pi - (p+s) rx\right\} \frac{x\,dx}{q^2 - x^2} = -\frac{\pi}{2} Cos^{p-1} qr \,.\, Sin^{s-1} qr \,.$

$Sin\left\{\frac{1}{2} s\pi - (p+s) qr\right\}$ (H, 150).

24) $\int Cos^{s-1} rx \,.\, Sin\{(s+1) rx\} \,.\, Tg\, 2rx \frac{dx}{q^2 - x^2} = \frac{\pi}{2q} Tg\, 2qr \,.\, [1 - Cos^{s-1} qr \,.\, Cos\{(s+1) qr\}]$

(H, 166).

25) $\int Cos^{s-1} rx \,.\, Cos\{(s+1) rx\} \,.\, Tg\, 2rx \frac{x\,dx}{q^2 - x^2} = \frac{\pi}{2}[1 + Tg\, 2qr \,.\, Cos^{s-1} qr \,.\, Sin\{(s+1) qr\}]$

(H, 166).

26) $\int Cos^{s-1} rx \,.\, Sin\{(s+1) rx\} \,.\, Cot\, 2rx \frac{dx}{q^2 - x^2} = \frac{\pi}{2q} Cot\, 2qr \,.\, [1 - Cos^{s-1} qr \,.\, Cos\{(s+1) qr\}]$

(H, 166).

27) $\int Cos^{s-1} rx \,.\, Cos\{(s+1) rx\} \,.\, Cot\, 2rx \frac{x\,dx}{q^2 - x^2} = \frac{\pi}{2}[Cot\, 2qr \,.\, Cos^{s-1} qr \,.\, Sin\{(s+1) qr\} - 1]$

(H, 166).

28) $\int Cos^{p-2} rx \,.\, Sin^{s-2} rx \,.\, Sin\left\{(s-1)\frac{1}{2}\pi - (p+s) rx\right\} \frac{dx}{q^2 - x^2} = \frac{\pi}{2q} Cos^{p-2} qr \,.\, Sin^{s-2} qr \,.$

$Cos\left\{(s-1)\frac{1}{2}\pi - (p+s) qr\right\}$ (H, 170).

29) $\int Cos^{p-2} rx \,.\, Sin^{s-2} rx \,.\, Cos\left\{(s-1)\frac{1}{2}\pi - (p+s) rx\right\} \frac{x\,dx}{q^2 - x^2} = \frac{\pi}{2} Cos^{p-2} qr \,.\, Sin^{s-2} qr \,.$

$Sin\left\{(s-1)\frac{1}{2}\pi - (p+s) qr\right\}$ (H, 170).

F. Alg. rat. fract. à dén. $q^2 - x^2$; Circ. Dir. en num. à plus. fact. **TABLE 167.** Lim. 0 et ∞.

1) $\int Sin^s rx \,.\, Sin^{s_1} r_1 x \ldots Sin\left\{(s + s_1 + \ldots)\frac{1}{2}\pi - (sr + s_1 r_1 + \ldots) x\right\} \frac{x\,dx}{q^2 - x^2} =$

$= \frac{\pi}{2}\left\{Sin^s qr \,.\, Sin^{s_1} qr_1 \ldots Cos\left\{(s + s_1 + \ldots)\frac{1}{2}\pi - (sr + s_1 r_1 + \ldots) q\right\} - 2^{-s-s_1-\ldots}\right\}$ (H, 106).

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2) $$\int Sin^s rx . Sin^{s_1} r_1 x \ldots Cos\left\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots)x\right\}\frac{dx}{q^2-x^2}=$$
$$=-\frac{\pi}{2q}Sin^s qr . Sin^{s_1} qr_1 \ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots)q\right\} \text{ (H, 106).}$$

3) $$\int Cos^s rx . Cos^{s_1} r_1 x \ldots Sin\{(sr+s_1r_1+\ldots)x\}\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\Big\{2^{-s-s_1-\ldots}-Cos^s qr . Cos^{s_1} qr_1 \ldots$$
$$\ldots Cos\{(sr+s_1r_1+\ldots)q\}\Big\} \text{ (H, 104).}$$

4) $$\int Cos^s rx . Cos^{s_1} r_1 x \ldots Cos\{(sr+s_1r_1+\ldots)x\}\frac{dx}{q^2-x^2}=\frac{\pi}{2q}Cos^s qr . Cos^{s_1} qr_1 \ldots$$
$$\ldots Sin\{(sr+s_1r_1+\ldots)q\} \text{ (H, 104).}$$

5) $$\int Sin^s rx \ldots Cos^t px \ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots+tp+\ldots)x\right\}\frac{x\,dx}{q^2-x^2}=$$
$$=\frac{\pi}{2}\left\{Sin^s qr \ldots Cos^t pq \ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots+tp+\ldots)q\right\}-2^{-t-\ldots-s-\ldots}\right\} \text{ (H, 108).}$$

6) $$\int Sin^s rx \ldots Cos^t px \ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots+tp+\ldots)x\right\}\frac{dx}{q^2-x^2}=$$
$$=-\frac{\pi}{2q}Sin^s qr \ldots Cos^t pq \ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots+tp+\ldots)q\right\} \text{ (H, 108).}$$

7) $$\int Sin^s rx \ldots Cos^t px \ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi-ux\right\}\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}Sin^s qr \ldots Cos^t pq \ldots$$
$$\ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi-qu\right\}\ [u>sr+\ldots+tp+\ldots] \text{ (H, 121).}$$

8) $$\int Sin^s rx \ldots Cos^t px \ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi-ux\right\}\frac{dx}{q^2-x^2}=-\frac{\pi}{2q}Sin^s qr \ldots Cos^t pq \ldots$$
$$\ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi-qu\right\}\ [u>sr+\ldots+tp+\ldots] \text{ (H, 121).}$$

9) $$\int Cos^p rx . Sin^s rx . Sin\left\{\frac{1}{2}s\pi-(p+s)rx\right\} . Tg\,2rx\frac{dx}{q^2-x^2}=\frac{\pi}{2q}Cos^p qr . Sin^s qr . Tg\,2qr$$
$$Cos\left\{\frac{1}{2}s\pi-(p+s)qr\right\} \text{ (H, 150).}$$

10) $$\int Cos^p rx . Sin^s rx . Cos\left\{\frac{1}{2}s\pi-(p+s)rx\right\} . Tg\,2rx\frac{x\,dx}{q^2-x^2}=-\frac{\pi}{2}Cos^p qr . Sin^s qr . Tg\,2qr .$$
$$Sin\left\{\frac{1}{2}s\pi-(p+s)qr\right\} \text{ (H, 150).}$$

11) $\int Cos^p rx . Sin^s rx . Sin\left\{\frac{1}{2}s\pi-(p+s)rx\right\}. Cot 2rx \frac{dx}{q^2-x^2}=\frac{\pi}{2q} Cos^p qr . Sin^s qr . Cot 2qr .$
$Cos\left\{\frac{1}{2}s\pi-(p+s)qr\right\}$ (H, 150).

12) $\int Cos^p rx . Sin^s rx . Cos\left\{\frac{1}{2}s\pi-(p+s)rx\right\}. Cot 2rx \frac{x dx}{q^2-x^2}=-\frac{\pi}{2} Cos^p qr . Sin^s qr . Cot 2qr .$
$Sin\left\{\frac{1}{2}s\pi-(p+s)qr\right\}$ (H, 150).

13) $\int Cos^{p-1} rx . Sin^{s-1} rx . Sin\left\{(s-1)\frac{1}{2}\pi-(p+s)rx\right\}. Tg 2rx \frac{dx}{q^2-x^2}=\frac{\pi}{2q} Cos^{p-1} qr .$
$Sin^{s-1} qr . Tg 2qr . Cos\left\{(s-1)\frac{1}{2}\pi-(p+s)qr\right\}$ (H, 170).

14) $\int Cos^{p-1} rx . Sin^{s-1} rx . Cos\left\{(s-1)\frac{1}{2}\pi-(p+s)rx\right\}. Tg 2rx \frac{x dx}{q^2-x^2}=\frac{\pi}{2} Cos^{p-1} qr .$
$Sin^{s-1} qr . Tg 2qr . Sin\left\{(s-1)\frac{1}{2}\pi-(p+s)qr\right\}$ (H, 170).

15) $\int Cos^{p-1} rx . Sin^{s-1} rx . Sin\left\{(s-1)\frac{1}{2}\pi-(p+s)rx\right\}. Cot 2rx \frac{dx}{q^2-x^2}=\frac{\pi}{2q} Cos^{p-1} qr .$
$Sin^{s-1} qr . Cot 2qr . Cos\left\{(s-1)\frac{1}{2}\pi-(p+s)qr\right\}$ (H, 170).

16) $\int Cos^{p-1} rx . Sin^{s-1} rx . Cos\left\{(s-1)\frac{1}{2}\pi-(p+s)rx\right\}. Cot 2rx \frac{x dx}{q^2-x^2}=\frac{\pi}{2} Cos^{p-1} qr .$
$Sin^{s-1} qr . Cot 2qr . Sin\left\{(s-1)\frac{1}{2}\pi-(p+s)qr\right\}$ (H, 170).

F. Alg. rat. fract. à dén. q^4+x^4; Circ. Dir. en num. à plus. fact. TABLE 168. Lim. 0 et ∞.

1) $\int Sin 4srx . Tg rx \frac{dx}{4q^4+x^4}=-\frac{\pi}{8q^3} \frac{1-2e^{-2qr} Sin 2qr - e^{-4qr}+2e^{-(2s+1)2qr} Sin 2qr .}{1+}$
$\frac{(Cos 4sqr - Sin 4sqr)-e^{-4sqr}(1-e^{-4qr})(Cos 4sqr + Sin 4sqr)}{+2e^{-2qr} Cos 2qr + e^{-4qr}}$ (H, 88).

2) $\int Sin 4srx . Tg rx \frac{x^2 dx}{4q^4+x^4}=-\frac{\pi}{4q} \frac{1+2e^{-2qr} Sin 2qr - e^{-4qr} - 2e^{-(2s+1)2qr} Sin 2qr .}{1+}$
$\frac{(Cos 4sqr + Sin 4sqr)-e^{-4sqr}(1-e^{-4qr})(Cos 4sqr - Sin 4sqr)}{+2e^{-2qr} Cos 2qr + e^{-4qr}}$ (H, 88).

3) $\int Sin^2 2srx \,.\, Tg\, rx \frac{x\,dx}{4q^4+x^4} = \frac{\pi}{8q^2} \frac{2e^{-2qr} Sin\, 2qr - 2e^{-(2s+1)2qr} Sin\, 2qr \,.\, Cos\, 4sqr + e^{-4sqr}(1-e^{-4qr}) Sin\, 4sqr}{1+2e^{-2qr} Cos\, 2qr + e^{-4qr}}$ (H, 88).

4) $\int Sin^2 2srx \,.\, Tg\, rx \frac{x^3\,dx}{4q^4+x^4} = \frac{\pi}{4} \frac{2e^{-2qr} Cos\, 2qr + 2e^{-4qr} + 2e^{-(2s+1)2qr} Sin\, 2qr \,.\, Sin\, 4sqr + e^{-4sqr}(1-e^{-4qr}) Cos\, 4sqr}{1+2e^{-2qr} Cos\, 2qr + e^{-4qr}}$ (H, 89).

5) $\int Sin\, 2srx \,.\, Cot\, rx \frac{dx}{4q^4+x^4} = \frac{\pi}{8q^3} \frac{1+2e^{-2qr} Sin\, 2qr - e^{-4qr} - e^{-2sqr}(1-e^{-4qr})(Cos\, 2sqr + Sin\, 2sqr) - 2e^{-(s+1)2qr} Sin\, 2qr \,.\, (Cos\, 2sqr - Sin\, 2sqr)}{1-2e^{-2qr} Cos\, 2qr + e^{-4qr}}$ (H, 85).

6) $\int Sin\, 2srx \,.\, Cot\, rx \frac{x^2\,dx}{4q^4+x^4} = \frac{\pi}{4q} \frac{1-2e^{-2qr} Sin\, 2qr - e^{-4qr} - e^{-2sqr}(1-e^{-4qr})(Cos\, 2sqr - Sin\, 2sqr) + 2e^{-(s+1)2qr} Sin\, 2qr \,.\, (Cos\, 2sqr + Sin\, 2sqr)}{1-2e^{-2qr} Cos\, 2qr + e^{-4qr}}$ (H, 85).

7) $\int Sin^2 srx \,.\, Cot\, rx \frac{x\,dx}{4q^4+x^4} = \frac{\pi}{8q^2} \frac{2e^{-2qr} Sin\, 2qr - e^{-2sqr}(1-e^{-4qr}) Sin\, 2sqr - 2e^{-(s+1)2qr} Cos\, 2sqr \,.\, Sin\, 2qr}{1-2e^{-2qr} Cos\, 2qr + e^{-4qr}}$ (H, 85).

8) $\int Sin^2 srx \,.\, Cot\, rx \frac{x^3\,dx}{4q^4+x^4} = \frac{\pi}{4} \frac{2e^{-2qr} Cos\, 2qr - 2e^{-4qr} - e^{-2sqr}(1-e^{-4qr}) Cos\, 2sqr + 2e^{-(s+1)2qr} Sin\, 2sqr \,.\, Sin\, 2qr}{1-2e^{-2qr} Cos\, 2qr + e^{-4qr}}$ (H, 85).

9) $\int Sin^s rx \ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi - (sr+\ldots)x\right\} \frac{x\,dx}{4q^4+x^4} = \frac{\pi}{2^{2+s+\ldots}q^2}(1-2e^{-2qr} Cos\, 2qr + e^{-4qr})^{\frac{1}{2}s} \ldots Sin\left\{s\, Arctg\left(\frac{Sin\, 2qr}{e^{2qr} - Cos\, 2qr}\right) + \ldots\right\}$ (H, 51).

10) $\int Sin^s rx \ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi - (sr+\ldots)x\right\} \frac{x^3\,dx}{4q^4+x^4} = \frac{\pi}{2^{1+s+\ldots}}\left\{1-(1-2e^{-2qr} Cos\, 2qr + e^{-4qr})^{\frac{1}{2}s} \ldots Cos\left\{s\, Arctg\left(\frac{Sin\, 2qr}{e^{2qr} - Cos\, 2qr}\right) + \ldots\right\}\right\}$ (H, 52).

11) $\int Sin^s rx \ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi - (sr+\ldots)x\right\} \frac{dx}{4q^4+x^4} = \frac{\pi}{2^{2+s+\ldots}q^3}(1-2e^{-2qr} Cos\, 2qr + e^{-4qr})^{\frac{1}{2}s} \ldots \left\{Cos\left\{s\, Arctg\left(\frac{Sin\, 2qr}{e^{2qr} - Cos\, 2qr}\right) + \ldots\right\} - Sin\left\{s\, Arctg\left(\frac{Sin\, 2qr}{e^{2qr} - Cos\, 2qr}\right) + \ldots\right\}\right\}$ (H, 51).

12) $$\int Sin^s\, rx \ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi - (sr+\ldots)x\right\}\frac{x^2\,dx}{4q^4+x^4} = \frac{\pi}{2^{2+s+\ldots}q}(1-2e^{-2qr}\,Cos\,2qr + e^{-4qr})^{\frac{1}{2}s}\ldots\left\{Cos\left\{s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)+\ldots\right\}+Sin\left\{s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)+\ldots\right\}\right\}$$ (H, 51).

13) $$\int Cos^s\, rx \ldots Sin\,\{(sr+\ldots)x\}\frac{x\,dx}{4q^4+x^4} = \frac{\pi}{2^{2+s+\ldots}q^2}(1+2e^{-2qr}\,Cos\,2qr+e^{-4qr})^{\frac{1}{2}s}\ldots Sin\left\{s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}+Cos\,2qr}\right)+\ldots\right\}$$ (H, 46).

14) $$\int Cos^s\, rx \ldots Sin\,\{(sr+\ldots)x\}\frac{x^3\,dx}{4q^4+x^4} = \frac{\pi}{2^{1+s+\ldots}}(1+2e^{-2qr}\,Cos\,2qr+e^{-4qr})^{\frac{1}{2}s}\ldots Cos\left\{s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}+Cos\,2qr}\right)+\ldots\right\}$$ (H, 46).

15) $$\int Cos^s\, rx \ldots Cos\,\{(sr+\ldots)x\}\frac{dx}{4q^4+x^4} = \frac{\pi}{2^{3+s+\ldots}q^3}(1+2e^{-2qr}\,Cos\,2q.+e^{-4qr})^{\frac{1}{2}s}\ldots\left\{Cos\left\{s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}+Cos\,2qr}\right)+\ldots\right\}+Sin\left\{s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}+Cos\,2qr}\right)+\ldots\right\}\right\}$$ (H, 46).

16) $$\int Cos^s\, rx \ldots Cos\,\{(sr+\ldots)x\}\frac{x^2\,dx}{4q^4+x^4} = \frac{\pi}{2^{2+s+\ldots}q}(1+2e^{-2qr}\,Cos\,2qr+e^{-4qr})^{\frac{1}{2}s}\ldots\left\{Cos\left\{s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}+Cos\,2qr}\right)+\ldots\right\}-Sin\left\{s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}+Cos\,2qr}\right)+\ldots\right\}\right\}$$ (H, 46).

17) $$\int Sin^s\, rx \ldots Cos^t\, px \ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots+tp+\ldots)x\right\}\frac{x\,dx}{4q^4+x^4} = \frac{-\pi}{2^{2+s+\ldots+t+\ldots}q^2}$$
$$(1+2e^{-2pq}\,Cos\,2pq+e^{-4pq})^{\frac{1}{2}t}\ldots(1-2e^{-2qr}\,Cos\,2qr+e^{-4qr})^{\frac{1}{2}s}\ldots$$
$$Sin\left\{t\,Arctg\left(\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}\right)+\ldots-s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)-\ldots\right\}$$ (H, 56).

18) $$\int Sin^s\, rx \ldots Cos^t\, px \ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots+tp+\ldots)x\right\}\frac{x^3\,dx}{4q^4+x^4} = \frac{\pi}{2^{1+s+\ldots+t+\ldots}}$$
$$\left\{1-(1+2e^{-2pq}\,Cos\,2pq+e^{-4pq})^{\frac{1}{2}t}\ldots(1-2e^{-2qr}\,Cos\,2qr+e^{-4qr})^{\frac{1}{2}s}\ldots\right.$$
$$\left.Cos\left\{t\,Arctg\left(\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}\right)+\ldots-s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)-\ldots\right\}\right\}$$ (H, 56).

19) $$\int Sin^s\, rx \ldots Cos^t\, px \ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots+tp+\ldots)x\right\}\frac{dx}{4q^4+x^4} = \frac{\pi}{2^{3+s+\ldots+t+\ldots}q^3}$$
$$(1+2e^{-2pq}\,Cos\,2pq+e^{-4pq})^{\frac{1}{2}t}\ldots(1-2e^{-2qr}\,Cos\,2qr+e^{-4qr})^{\frac{1}{2}s}\ldots$$

$$\left\{Cos\left\{t\,Arctg\left(\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}\right)+\ldots-s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)-\ldots\right\}+\right.$$

$$\left.+Sin\left\{t\,Arctg\left(\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}\right)+\ldots-s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)-\ldots\right\}\right\} \quad \text{(H, 55).}$$

20) $$\int Sin^s rx\ldots Cos^t px\ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots+tp+\ldots)x\right\}\frac{x^2\,dx}{4q^4+x^4}=\frac{\pi}{2^{2+s+\ldots+t+\ldots}q}$$

$$(1+2e^{-2pq}Cos\,2pq+e^{-4pq})^{\frac{1}{2}t}\ldots(1-2e^{-2qr}Cos\,2qr+e^{-4qr})^{\frac{1}{2}s}\ldots$$

$$\left\{Cos\left\{t\,Arctg\left(\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}\right)+\ldots-s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)-\ldots\right\}-\right.$$

$$\left.-Sin\left\{t\,Arctg\left(\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}\right)+\ldots-s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)-\ldots\right\}\right\}$$

(H, 56).

21) $$\int Sin^s rx\ldots Cos^t px\ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi-ux\right\}\frac{x\,dx}{4q^4+x^4}=\frac{-\pi}{2^{2+s+\ldots+t+\ldots}q^2}(e^{2pq}+$$

$$+2\,Cos\,2pq+e^{-2pq})^{\frac{1}{2}t}\ldots(e^{2qr}-2\,Cos\,2qr+e^{-2qr})^{\frac{1}{2}s}\ldots e^{-qu}$$

$$Sin\left\{t\,Arctg\left(\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}\right)+\ldots-s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)-\ldots+\right.$$

$$\left.+(sr+\ldots+pt+\ldots-u)q\right\} \quad \text{(H, 81*).}$$

22) $$\int Sin^s rx\ldots Cos^t px\ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi-ux\right\}\frac{x^3\,dx}{4q^4+x^4}=\frac{-\pi}{2^{1+s+\ldots+t+\ldots}}(e^{2pq}+$$

$$+2\,Cos\,2pq+e^{-2pq})^{\frac{1}{2}t}\ldots(e^{2qr}-2\,Cos\,2qr+e^{-2qr})^{\frac{1}{2}s}\ldots e^{-qu}$$

$$Cos\left\{t\,Arctg\left(\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}\right)+\ldots-s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)-\ldots+\right.$$

$$\left.+(sr+\ldots+pt+\ldots-u)q\right\} \quad \text{(H, 81*).}$$

23) $$\int Sin^s rx\ldots Cos^t px\ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi-ux\right\}\frac{dx}{4q^4+x^4}=\frac{\pi}{2^{3+s+\ldots+t+\ldots}q^3}(e^{2pq}+$$

$$+2\,Cos\,2pq+e^{-2pq})^{\frac{1}{2}t}\ldots(e^{2qr}-2\,Cos\,2qr+e^{-2qr})^{\frac{1}{2}s}\ldots e^{-qu}$$

$$\left\{Cos\left\{t\,Arctg\left(\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}\right)+\ldots-s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)-\ldots+\right.\right.$$

$$\left.+(sr+\ldots+tp+\ldots-u)q\right\}+Sin\left\{t\,Arctg\left(\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}\right)+\ldots-\right.$$

$$\left.\left.-s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)-\ldots+(sr+\ldots+tp+\ldots-u)q\right\}\right\} \quad \text{(H, 81*).}$$

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24) $\int Sin^s rx \dots Cos^t px \dots Cos\left\{(s+\dots)\frac{1}{2}\pi - ux\right\}\frac{x^2\,dx}{4q^4+x^4} = \frac{\pi}{2^{2+s+\dots+t+\dots}q}(e^{2pq}+$

$+2\,Cos\,2pq+e^{-2pq})^{\frac{1}{2}t}\dots(e^{2qr}-2\,Cos\,2qr+e^{-2qr})^{\frac{1}{2}s}\dots e^{-qu}$

$\left\{Cos\left\{t\,Arctg\left(\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}\right)+\dots - s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)-\dots+\right.\right.$

$+(sr+\dots+tp+\dots-u)q\Big\} - Sin\left\{t\,Arctg\left(\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}\right)+\dots-\right.$

$\left.\left.-s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)-\dots+(sr+\dots+tp+\dots-u)q\right\}\right\}$ (H, 81*).

Dans 21) à 24) on a $u > sr+\dots+tp+\dots$

25) $\int\{Cos(p^2x^2)-Sin(p^2x^2)\}\frac{dx}{q^4+x^4} = \frac{\pi}{2q^3\sqrt{2}}e^{-p^2q^2}$ (IV, 291).

F. Alg. rat. fract. à dén. q^4-x^4; Circ. Dir. en num. à plus. fact. TABLE 169. Lim. 0 et ∞.

1) $\int Sin\,4srx\,.\,Tg\,rx\frac{dx}{q^4-x^4} = \frac{\pi}{4q^3}\left\{2\,Sin^2 2sqr\,.\,Tg\,qr-(1-e^{-4sqr})\frac{1-e^{-2qr}}{1+e^{-2qr}}\right\}$ (H, 130).

2) $\int Sin\,4srx\,.\,Tg\,rx\frac{x^2\,dx}{q^4-x^4} = \frac{\pi}{4q}\left\{2\,Sin^2 2sqr\,.\,Tg\,qr+(1-e^{-4sqr})\frac{1-e^{-2qr}}{1+e^{-2qr}}\right\}$ (H, 130).

3) $\int Sin^2 2srx\,.\,Tg\,rx\frac{x\,dx}{q^4-x^4} = \frac{-\pi}{8q^2}\left\{Sin\,4sqr\,.\,Tg\,qr+(1-e^{-4sqr})\frac{1-e^{-2qr}}{1+e^{-2qr}}\right\}$ (H, 130).

4) $\int Sin^2 2srx\,.\,Tg\,rx\frac{x^3\,dx}{q^4-x^4} = \frac{\pi}{8}\left\{(1-e^{-4sqr})\frac{1-e^{-2qr}}{1+e^{-2qr}}-2-Sin\,4sqr\,.\,Tg\,qr\right\}$ (H, 131).

5) $\int Sin\,2srx\,.\,Cot\,rx\frac{dx}{q^4-x^4} = \frac{\pi}{4q^3}\left\{2\,Sin^2 sqr\,.\,Cot\,qr+(1-e^{-2sqr})\frac{1+e^{-2qr}}{1-e^{-2qr}}\right\}$ (H, 127).

6) $\int Sin\,2srx\,.\,Cot\,rx\frac{x^2\,dx}{q^4-x^4} = \frac{\pi}{4q}\left\{2\,Sin^2 sqr\,.\,Cot\,qr-(1-e^{-2sqr})\frac{1+e^{-2qr}}{1-e^{-2qr}}\right\}$ (H, 127).

7) $\int Sin^2 srx\,.\,Cot\,rx\frac{x\,dx}{q^4-x^4} = \frac{\pi}{8q^2}\left\{(1-e^{-2sqr})\frac{1+e^{-2qr}}{1-e^{-2qr}}-Sin\,2sqr\,.\,Cot\,qr\right\}$ (H, 128).

8) $\int Sin^2 srx\,.\,Cot\,rx\frac{x^3\,dx}{q^4-x^4} = \frac{\pi}{8}\left\{2-Sin\,2sqr\,.\,Cot\,qr-(1-e^{-2sqr})\frac{1+e^{-2qr}}{1-e^{-2qr}}\right\}$ (H, 128).

9) $\int Sin^s rx . Sin^{s_1} r_1 x \ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots)x\right\}\frac{x\,dx}{q^4-x^4}=\frac{\pi}{4q^2}$
$\left\{Sin^s qr . Sin^{s_1} qr_1 \ldots Cos\left\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots)q\right\}-2^{-s-s_1-\ldots}\right.$
$\left.(1-e^{-2qr})^s(1-e^{-2qr_1})^{s_1}\ldots\right\}$ (H, 107).

10) $\int Sin^s rx . Sin^{s_1} r_1 x \ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots)x\right\}\frac{x^2\,dx}{q^4-x^4}=\frac{\pi}{4}$
$\left\{2^{-s-s_1-\ldots}\left\{(1-e^{-2qr})^s(1-e^{-2qr_1})^{s_1}\ldots-2\right\}+Sin^s qr . Sin^{s_1} qr_1 \ldots\right.$
$\left.\ldots Cos\left\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots)q\right\}\right\}$ (H, 107).

11) $\int Sin^s rx . Sin^{s_1} r_1 x \ldots Cos\left\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots)x\right\}\frac{dx}{q^4-x^4}=\frac{\pi}{4q^3}$
$\left\{2^{-s-s_1-\ldots}(1-e^{-2qr})^s(1-e^{-2qr_1})^{s_1}\ldots-Sin^s qr . Sin^{s_1} qr_1 \ldots\right.$
$\left.\ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots)q\right\}\right\}$ (H, 107).

12) $\int Sin^s rx . Sin^{s_1} r_1 x \ldots Cos\left\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots)x\right\}\frac{x^2\,dx}{q^4-x^4}=\frac{-\pi}{4q}$
$\left\{2^{-s-s_1-\ldots}(1-e^{-2qr})^s(1-e^{-2qr_1})^{s_1}\ldots+Sin^s qr . Sin^{s_1} qr_1 \ldots\right.$
$\left.\ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots)q\right\}\right\}$ (H, 107).

13) $\int Cos^s rx . Cos^{s_1} r_1 x \ldots Sin\{(sr+s_1r_1\ldots)x\}\frac{x\,dx}{q^4-x^4}=\frac{\pi}{4q^2}\left\{2^{-s-s_1-\ldots}(1+e^{-2qr})^s\right.$
$\left.(1+e^{-2qr_1})^{s_1}\ldots-Cos^s qr . Cos^{s_1} qr_1 \ldots Cos\{(sr+s_1r_1+\ldots)q\}\right\}$ (H, 105).

14) $\int Cos^s rx . Cos^{s_1} r_1 x \ldots Sin\{(sr+s_1r_1+\ldots)x\}\frac{x^3\,dx}{q^4-x^4}=\frac{\pi}{4}\left\{2^{-s-s_1-\ldots}\{2-(1+e^{-2qr})^s\right.$
$\left.(1+e^{-2qr_1})^{s_1}\ldots\}-Cos^s qr . Cos^{s_1} qr_1 \ldots Cos\{(sr+s_1r_1+\ldots)q\}\right\}$ (H, 105).

15) $\int Cos^s rx . Cos^{s_1} r_1 x \ldots Cos\{(sr+s_1r_1+\ldots)x\}\frac{dx}{q^4-x^4}=\frac{\pi}{4q^3}\left\{2^{-s-s_1-\ldots}(1+e^{-2qr})^s\right.$
$\left.(1+e^{-2qr_1})^{s_1}\ldots+Cos^s qr . Cos^{s_1} qr_1 \ldots Sin\{(sr+s_1r_1+\ldots)q\}\right\}$ (H, 104).

16) $\int Cos^s rx . Cos^{s_1} r_1 x \ldots Cos\{(sr+s_1r_1+\ldots)x\}\frac{x^2\,dx}{q^4-x^4}=\frac{\pi}{4q}\left\{Cos^s qr . Cos^{s_1} qr_1 \ldots\right.$
$\left.\ldots Sin\{(sr+s_1r_1+\ldots)q\}-2^{-s-s_1-\ldots}(1+e^{-2qr})^s(1+e^{-2qr_1})^{s_1}\ldots\right\}$ (H, 104).

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17) $\int Sin^s rx . Sin^{s_1} r_1 x \dots Cos^t px . Cos^{t_1} p_1 x \dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots+ +tp+t_1p_1+\dots)x\right\}\frac{x\,dx}{q^4-x^4}=\frac{\pi}{4q^2}\left\{Sin^s qr . Sin^{s_1} qr_1 \dots Cos^t pq . Cos^{t_1} p_1 q \dots \dots Cos\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots+tp+t_1p_1+\dots)q\right\}-2^{-s-s_1-\dots-t-t_1-\dots} (1+e^{-2pq})^t(1+e^{-2p_1q})^{t_1}\dots(1-e^{-2qr})^s(1-e^{-2qr_1})^{s_1}\dots\right\}$ (H, 109).

18) $\int Sin^s rx . Sin^{s_1} r_1 x \dots Cos^t px . Cos^{t_1} p_1 x \dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots+ +tp+t_1p_1+\dots)x\right\}\frac{x^3\,dx}{q^4-x^4}=\frac{\pi}{4}\left\{2^{-s-s_1-\dots-t-t_1-\dots}(1+e^{-2pq})^t(1+e^{-2p_1q})^{t_1}\dots \dots(1-e^{-2qr})^s(1-e^{-2qr_1})^{s_1}\dots+Sin^s qr . Sin^{s_1} qr_1 \dots Cos^t pq . Cos^{t_1} p_1 q \dots \dots Cos\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots+tp+t_1p_1+\dots)q\right\}\right\}$ (H, 109).

19) $\int Sin^s rx . Sin^{s_1} r_1 x \dots Cos^t px . Cos^{t_1} p_1 x \dots Cos\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots+ +tp+t_1p_1+\dots)x\right\}\frac{dx}{q^4-x^4}=\frac{\pi}{4q^3}\left\{2^{-s-s_1-\dots-t-t_1-\dots}(1+e^{-2pq})^t(1+e^{-2p_1q})^{t_1}\dots \dots(1-e^{-2qr})^s(1-e^{-2qr_1})^{s_1}\dots-Sin^s qr . Sin^{s_1} qr_1 \dots Cos^t pq . Cos^{t_1} p_1 q \dots \dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots+tp+t_1p_1+\dots)q\right\}\right\}$ (H, 108).

20) $\int Sin^s rx . Sin^{s_1} r_1 x \dots Cos^t px . Cos^{t_1} p_1 x \dots Cos\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots+ +tp+t_1p_1+\dots)x\right\}\frac{x^2\,dx}{q^4-x^4}=\frac{-\pi}{4q}\left\{2^{-s-s_1-\dots-t-t_1-\dots}(1+e^{-2pq})^t(1+e^{-2p_1q})^{t_1}\dots \dots(1-e^{-2qr})^s(1-e^{-2qr_1})^{s_1}\dots+Sin^s qr . Sin^{s_1} qr_1 \dots Cos^t pq . Cos^{t_1} p_1 q \dots \dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots+tp+t_1p_1+\dots)q\right\}\right\}$ (H, 109).

21) $\int Sin^s rx . Sin^{s_1} r_1 x \dots Cos^t px . Cos^{t_1} p_1 x \dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-ux\right\}\frac{x\,dx}{q^4-x^4}= =\frac{\pi}{4q^2}\left\{Sin^s qr . Sin^{s_1} qr_1 \dots Cos^t pq . Cos^{t_1} p_1 q \dots Cos\left\{(s+s_1+\dots)\frac{1}{2}\pi-qu\right\}- -2^{-s-s_1-\dots-t-t_1-\dots}(e^{pq}+e^{-pq})^t(e^{p_1q}+e^{-p_1q})^{t_1}\dots(e^{qr}-e^{-qr})^s(e^{qr_1}-e^{-qr_1})^{s_1}\dots e^{-qu}\right\}$ (H, 123*).

22) $\int Sin^s rx . Sin^{s_1} r_1 x \dots Cos^t px . Cos^{t_1} p_1 x \dots Sin \left\{ (s + s_1 + \dots) \frac{1}{2} \pi - ux \right\} \frac{x^3 dx}{q^4 - x^4} =$

$= \frac{\pi}{q} \left\{ 2^{-s-s_1-\dots-t-t_1-\dots} (e^{pq} + e^{-pq})^t (e^{p_1 q} + e^{-p_1 q})^{t_1} \dots (e^{qr} - e^{-qr})^s (e^{qr_1} - e^{-qr_1})^{s_1} \dots e^{-qu} + \right.$

$\left. + Sin^s qr . Sin^{s_1} qr_1 \dots Cos^t pq . Cos^{t_1} p_1 q \dots Cos \left\{ (s + s_1 + \dots) \frac{1}{2} \pi - qu \right\} \right\}$ (H, 123*).

23) $\int Sin^s rx . Sin^{s_1} r_1 x \dots Cos^t px . Cos^{t_1} p_1 x \dots Cos \left\{ (s + s_1 + \dots) \frac{1}{2} \pi - ux \right\} \frac{dx}{q^4 - x^4} =$

$= \frac{\pi}{4q^3} \left\{ 2^{-s-s_1-\dots-t-t_1-\dots} (e^{pq} + e^{-pq})^t (e^{p_1 q} + e^{-p_1 q})^{t_1} \dots (e^{qr} - e^{-qr})^s (e^{qr_1} - e^{-qr_1})^{s_1} \dots \right.$

$\left. e^{-qu} - Sin^s qr . Sin^{s_1} qr_1 \dots Cos^t pq . Cos^{t_1} p_1 q \dots Sin \left\{ (s + s_1 + \dots) \frac{1}{2} \pi - qu \right\} \right\}$ (H, 123*).

24) $\int Sin^s rx . Sin^{s_1} r_1 x \dots Cos^t px . Cos^{t_1} p_1 x \dots Cos \left\{ (s + s_1 + \dots) \frac{1}{2} \pi - ux \right\} \frac{x^2 dx}{q^4 - x^4} =$

$= \frac{-\pi}{4q} \left\{ Sin^s qr . Sin^{s_1} qr_1 \dots Cos^t pq . Cos^{t_1} p_1 q \dots Sin \left\{ (s + s_1 + \dots) \frac{1}{2} \pi - qu \right\} + 2^{-s-s_1-\dots-t-t_1-\dots} \right.$

$\left. (e^{pq} + e^{-pq})^t (e^{p_1 q} + e^{-p_1 q})^{t_1} \dots (e^{qr} - e^{-qr})^s (e^{qr_1} - e^{-qr_1})^{s_1} \dots e^{-qu} \right\}$ (H, 123*).

Dans 21) à 24) on a $u > sr + s_1 r_1 + \dots + tp + t_1 p_1 + \dots$

F. Alg. rat. fract. à dén. $(q^2 + x^2)^a$; Circ. Dir. en num. TABLE 170. Lim. 0 et ∞.

1) $\int Sin px \frac{p^2 (q + x)^2 + r(r+1)}{(q + x)^{r+2}} dx = \frac{p}{q^r}$ (IV, 289).

2) $\int Cos px \frac{p^2 (q + x)^2 + r(r+1)}{(q + x)^{r+2}} dx = \frac{r}{q^{r+1}}$ (IV, 289).

3) $\int Sin px \frac{x dx}{(q^2 + x^2)^2} = \frac{\pi}{4q} p e^{-pq}$ (VIII, 527).

4) $\int Sin px \frac{x^3 dx}{(q^2 + x^2)^2} = \frac{\pi}{4} (2 - pq) e^{-pq}$ (VIII, 527).

5) $\int Sin px \frac{x dx}{(q^2 + x^2)^3} = \frac{\pi}{16 q^3} (pq + 1) p e^{-pq}$ (IV, 289).

6) $\int Sin px \frac{x dx}{(q^2 + x^2)^4} = \frac{\pi}{96 q^5} (3 + 3pq + p^2 q^2) p e^{-pq}$ (IV, 289).

7) $\int Cos px \frac{dx}{(q^2 + x^2)^2} = \frac{\pi}{4 q^3} (1 + pq) e^{-pq}$ (VIII, 527).

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8) $\int Cos\,px \frac{x^2\,dx}{(q^2+x^2)^2} = \frac{\pi}{4q}(1-pq)e^{-pq}$ (VIII, 527).

9) $\int Cos\,px \frac{dx}{(q^2+x^2)^3} = \frac{\pi}{16q^5}(3+3pq+p^2q^2)e^{-pq}$ (IV, 289).

10) $\int Sin\,px \frac{x\,dx}{(q^2+x^2)^{a+1}} = \frac{\pi}{1^{a/1}} \frac{e^{-pq}}{2^{a+1}} \sum_0^\infty \frac{(a-n)^{2n/1}}{2^{n/2}} \frac{p^{a-n}}{q^{a+n}}$ (VIII, 489).

11) $\int Cos\,px \frac{dx}{(q^2+x^2)^{a+1}} = \frac{\pi}{1^{a/1}} \frac{e^{-pq}}{2^{a+1}} \sum_0^\infty \frac{(a-n+1)^{2n/1}}{2^{n/2}} \frac{p^{a-n}}{q^{a+n+1}}$ (VIII, 490).

12) $\int \{(1-x^2)\,Cos\,2x + 2x\,Sin\,2x\} \frac{dx}{(1+x^2)^3} = \frac{2\pi}{e^2}$ (IV, 291).

F. Alg. rat. fract. à dén. $(q^2-x^2)^a$; Circ. Dir. en num. TABLE 171. Lim. 0 et ∞.

1) $\int Sin\,px \frac{x\,dx}{(q^2-x^2)^2} = -\frac{p\pi}{4q} Sin\,pq$ (VIII, 565).

2) $\int Sin\,px \frac{x^3\,dx}{(q^2-x^2)^2} = \frac{\pi}{4}(2\,Cos\,pq - pq\,Sin\,pq)$ (VIII, 565).

3) $\int Cos\,px \frac{dx}{(q^2-x^2)^2} = \frac{\pi}{4q^3}(Sin\,pq - pq\,Cos\,pq)$ (VIII, 565).

4) $\int Cos\,px \frac{x^2\,dx}{(q^2-x^2)^2} = -\frac{\pi}{4q}(Sin\,pq + pq\,Cos\,pq)$ (VIII, 565).

5) $\int Sin\,4srx\,.\,Tg\,rx \frac{dx}{(q^2-x^2)^2} = \frac{\pi}{4q^3}\Big\{2\,Sin^2 2sqr\,.\,Tg\,qr + \frac{1}{2}qr\,Sec^2 qr\,.\,[-1+2s\,Cos\{(2s+1)2qr\}+$
$+(2s+1)\,Cos\,4sqr] - 4sqr\,Cos\,4sqr\Big\}$ (H, 131).

6) $\int Sin\,4srx\,.\,Tg\,rx \frac{x^2\,dx}{(q^2-x^2)^2} = \frac{\pi}{4q}\Big\{\frac{1}{2}qr\,Sec^2 qr\,.\,[-1+2s\,Cos\{(2s+1)2qr\}+$
$+(2s+1)\,Cos\,4sqr] - 2\,Sin^2 2sqr\,.\,Tg\,qr - 4sqr\,Cos\,4sqr\Big\}$ (H, 131).

7) $\int Sin^2 2srx\,.\,Tg\,rx \frac{x\,dx}{(q^2-x^2)^2} = \frac{\pi r}{4q}\Big\{\frac{1}{4}Sec^2 qr\,.\,[2s\,Sin\{(2s+1)2qr\} + (2s+1)\,Sin\,4sqr] -$
$-2s\,Sin\,4sqr\Big\}$ (H, 132).

8) $\int Sin^2 2srx\,.\,Tg\,rx \frac{x^3\,dx}{(q^2-x^2)^2} = \frac{\pi}{8}\Big\{1 + Sin\,4sqr\,.\,Tg\,qr + \frac{1}{2}qr\,Sec^2 qr\,.\big[2s\,Sin\{(2s+1)2qr\}$
$+ (2s+1)\,Sin\,4sqr\big] - 4sqr\,Sin\,4sqr\Big\}$ (H, 132).

9) $\int Sin\,2srx\,.\,Cot\,rx \frac{dx}{(q^2-x^2)^2} = \frac{\pi}{4q^3}\Big\{2\,Sin^2 sqr\,.\,Cot\,qr - \frac{1}{2}qr\,Cosec^2 qr\,.\big[-1 + s$
$Cos\{(s-1)2qr\} - (s-1)\,Cos\,2sqr\big] - 2sqr\,Cos\,2sqr\Big\}$ (H, 128).

10) $\int Sin\,2srx\,.\,Cot\,rx \frac{x^2\,dx}{(q^2-x^2)^2} = \frac{-\pi}{4q}\Big\{2\,Sin^2 sqr\,.\,Cot\,qr + \frac{1}{2}qr\,Cosec^2 qr\,.\big[-1 + s$
$Cos\{(s-1)2qr\} - (s-1)\,Cos\,2sqr\big] + 2sqr\,Cos\,2sqr\Big\}$ (H, 128).

11) $\int Sin^2 srx\,.\,Cot\,rx \frac{x\,dx}{(q^2-x^2)^2} = \frac{-\pi r}{4q}\Big\{\frac{1}{4}Cosec^2 qr\,.\big[s\,Sin\{(s-1)2qr\} - (s-1)\,Sin\,2sqr\big] +$
$+ sqr\,Sin\,2sqr\Big\}$ (H, 128).

12) $\int Sin^2 srx\,.\,Cot\,rx \frac{x^3\,dx}{(q^2-x^2)^2} = \frac{\pi}{8}\Big\{Sin\,2sqr\,.\,Cot\,qr - \frac{1}{2}qr\,Cosec^2 qr\,.\big[s\,Sin\{(s-1)2qr\} -$
$-(s-1)\,Sin\,2sqr\big] - 2sqr\,Sin\,2sqr - 1\Big\}$ (H, 129).

13) $\int Sin^s rx \ldots Sin\Big\{(s+\ldots)\frac{1}{2}\pi - (sr+\ldots)x\Big\}\frac{x\,dx}{(q^2-x^2)^2} = \frac{\pi}{2q}Sin^s qr \ldots \Big\{sr\,Cosec\,qr\,.$
$Sin\Big\{\frac{1}{2}(s-1)\pi - (s+1)qr\Big\} + \ldots\Big\}$ (H, 107).

14) $\int Sin^s rx \ldots Sin\Big\{(s+\ldots)\frac{1}{2}\pi - (sr+\ldots)x\Big\}\frac{x^3\,dx}{(q^2-x^2)^2} = \frac{\pi}{4}\Big\{2^{1-s-\ldots} - Sin^s qr \ldots$
$\Big(Cos\Big\{(s+\ldots)\frac{1}{2}\pi - (sr+\ldots)q\Big\} - q\Big[sr\,Cosec\,qr\,.\,Sin\Big\{\frac{1}{2}(s-1)\pi - (s+1)qr\Big\} + \ldots\Big]\Big)\Big\}$
(H, 108).

15) $\int Sin^s rx \ldots Cos\Big\{(s+\ldots)\frac{1}{2}\pi - (sr+\ldots)x\Big\}\frac{dx}{(q^2-x^2)^2} = \frac{-\pi}{4q^3}Sin^s qr \ldots \Big\{Sin\Big\{(s+\ldots)\frac{1}{2}\pi -$
$-(sr+\ldots)q\Big\} + q\Big[sr\,Cosec\,qr\,.\,Cos\Big\{\frac{1}{2}(s-1)\pi - (s+1)qr\Big\} + \ldots\Big]\Big\}$ (H, 107).

16) $\int Sin^s rx \ldots Cos\Big\{(s+\ldots)\frac{1}{2}\pi - (sr+\ldots)x\Big\}\frac{x^2\,dx}{(q^2-x^2)^2} = \frac{\pi}{4q}Sin^s qr \ldots \Big\{Sin\Big\{(s+\ldots)\frac{1}{2}\pi -$
$-(sr+\ldots)q\Big\} - q\Big[sr\,Cosec\,qr\,.\,Cos\Big\{\frac{1}{2}(s-1)\pi - (s+1)qr\Big\} + \ldots\Big]\Big\}$ (H, 107).

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17) $\int Cos^s rx \ldots Sin\{(sr+\ldots)x\}\frac{x\,dx}{(q^2-x^2)^2}=\frac{\pi}{2q}Cos^s qr\ldots\{sr\,Sec\,qr.Sin\{(s+1)qr\}+\ldots\}$ (H, 105).

18) $\int Cos^s rx \ldots Sin\{(sr+\ldots)x\}\frac{x^2\,dx}{(q^2-x^2)^2}=\frac{\pi}{4}\Big\{Cos^s qr\ldots\{2\,Cos\{(sr+\ldots)q\}-q$
$[sr\,Sec\,qr.Sin\{(s+1)qr\}+\ldots]\}-2^{1-s-\ldots}\Big\}$ (H, 105).

19) $\int Cos^s rx \ldots Cos\{(sr+\ldots)x\}\frac{dx}{(q^2-x^2)^2}=\frac{\pi}{4q^3}Cos^s qr\ldots\Big\{Sin\{(sr+\ldots)q\}-q$
$\{sr\,Sec\,qr.Cos\{(s+1)qr\}+\ldots\}\Big\}$ (H, 105).

20) $\int Cos^s rx \ldots Cos\{(sr+\ldots)x\}\frac{x^2\,dx}{(q^2-x^2)^2}=-\frac{\pi}{4q}Cos^s qr\ldots\Big\{Sin\{(sr+\ldots)q\}+q$
$\{sr\,Sec\,qr.Cos\{(s+1)qr\}+\ldots\}\Big\}$ (H, 105).

21) $\int Sin^s rx \ldots Cos^t px \ldots Sin\Big\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots+tp+\ldots)x\Big\}\frac{x\,dx}{(q^2-x^2)^2}=\frac{\pi}{2q}Sin^s qr\ldots$
$\ldots Cos^t pq\ldots\Big\{sr\,Cosec\,qr.Sin\Big\{(s-1)\frac{1}{2}\pi-(s+1)qr\Big\}+\ldots+tp\,Sec\,pq.Sin\{(t+1)pq\}+\ldots\Big\}$ (H, 109).

22) $\int Sin^s rx \ldots Cos^t px \ldots Sin\Big\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots+tp+\ldots)x\Big\}\frac{x^2\,dx}{(q^2-x^2)^2}=\frac{\pi}{4}\Big\{2^{-s-\ldots-t-\ldots}-$
$\ldots Sin^s qr\ldots Cos^t pq\ldots\Big(Cos\Big\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots+tp+\ldots)q\Big\}+q\Big[sr\,Cosec\,qr.$
$Sin\Big\{(s-1)\frac{1}{2}\pi-(s+1)qr\Big\}+\ldots+tp\,Sec\,pq.Sin\{(t+1)pq\}+\ldots\Big]\Big)\Big\}$ (H, 110).

23) $\int Sin^s rx \ldots Cos^t px \ldots Cos\Big\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots+tp+\ldots)x\Big\}\frac{dx}{(q^2-x^2)^2}=-\frac{\pi}{4q^3}$
$Sin^s qr\ldots Cos^t pq\ldots\Big\{Sin\Big\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots+tp+\ldots)q\Big\}+q\Big[sr\,Cosec\,qr.$
$Cos\Big\{(s-1)\frac{1}{2}\pi-(s+1)qr\Big\}+\ldots+tp\,Sec\,pq.Cos\{(t+1)pq\}+\ldots\Big]\Big\}$ (H, 109).

24) $\int Sin^s rx \ldots Cos^t px \ldots Cos\Big\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots+tp+\ldots)x\Big\}\frac{x^2\,dx}{(q^2-x^2)^2}=\frac{\pi}{4q}Sin^s qr\ldots$
$\ldots Cos^t pq\ldots\Big\{Sin\Big\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots+tp+\ldots)q\Big\}-q\Big[sr\,Cosec\,qr.Cos\Big\{(s-1)\frac{1}{2}\pi-$
$-(s+1)qr\Big\}+\ldots+tp\,Sec\,pq.Cos\{(t+1)pq\}+\ldots\Big]\Big\}$ (H, 109).

25) $\int Sin^s rx \ldots Cos^t px \ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi - ux\right\}\frac{x\,dx}{(q^2-x^2)^2} = -\frac{\pi}{2q} Sin^s qr \ldots Cos^t pq \ldots$
$\left\{Cos\{(u-sr-\ldots-tp-\ldots)q\}.\left[sr\, Cosec\, qr . Sin\left\{(s-1)\frac{1}{2}\pi-(s+1)qr\right\}+\ldots+\right.\right.$
$\left.+tp\, Sec\, pq . Sin\{(t+1)pq\}+\ldots\right] + (u-sr-\ldots-tp-\ldots)q$
$\left.Sin\{(u-sr-\ldots-tp-\ldots)q\}\right\}$ (H, 124*).

26) $\int Sin^s rx \ldots Cos^t px \ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi - ux\right\}\frac{x^2\,dx}{(q^2-x^2)^2} = -\frac{\pi}{2} Sin^s qr \ldots Cos^t pq \ldots$
$\left\{Cos\left\{(s+\ldots)\frac{1}{2}\pi - qu\right\} + q\, Cos\{(u-sr-\ldots-tp-\ldots)q\}.\left[sr\, Cosec\, qr.\right.\right.$
$Sin\left\{(s-1)\frac{1}{2}\pi-(s+1)qr\right\}+\ldots+tp\, Sec\, pq . Sin\{(t+1)pq\}+\ldots\Big]+$
$\left.+(u-sr-\ldots-tp-\ldots)q\, Sin\{(u-sr-\ldots-tp-\ldots)q\}\right\}$ (H, 125*).

27) $\int Sin^s rx \ldots Cos^t px \ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi - ux\right\}\frac{dx}{(q^2-x^2)^2} = -\frac{\pi}{4q^3} Sin^s qr \ldots Cos^t pq \ldots$
$\left\{Sin\left\{(s+\ldots)\frac{1}{2}\pi - qu\right\} + q\, Cos\{(u-sr-\ldots-tp-\ldots)q\}.\Big[(u-sr-\ldots-tp-\ldots)+\right.$
$\left.+sr\, Cosec\, qr . Cos\left\{(s-1)\frac{1}{2}\pi-(s+1)qr\right\}+\ldots+tp\, Sec\, pq . Cos\{(t+1)pq\}+\ldots\Big]\right\}$
(H, 124*).

28) $\int Sin^s rx \ldots Cos^t px \ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi - ux\right\}\frac{x^2\,dx}{(q^2-x^2)^2} = \frac{\pi}{4q} Sin^s qr \ldots Cos^t pq \ldots$
$\left\{Sin\left\{(s+\ldots)\frac{1}{2}\pi - qu\right\} - q\, Cos\{(u-sr-\ldots-tp-\ldots)q\}.\Big[(u-sr-\ldots-tp-\ldots)+\right.$
$\left.+sr\, Cosec\, qr . Cos\left\{(s-1)\frac{1}{2}\pi-(s+1)qr\right\}+\ldots+tp\, Sec\, pq . Cos\{(t+1)pq\}+\ldots\Big]\right\}$
(H, 124*). Dans 25) à 28) on a $u > sr+\ldots+tp+\ldots$

29) $\int Sin\, px \frac{x\,dx}{(q^2-x^2)^{a+1}} = \frac{1}{1^{a/1}}\left(\frac{p}{2q}\right)^a \frac{\pi}{2}\sum_0^\infty \frac{(a-n)^{2n/1}}{1^{n/1}}\left(\frac{1}{2pq}\right)^n Cos\left\{\frac{a-n}{2}\pi+pq\right\}$ (VIII, 490).

30) $\int Cos\, px \frac{dx}{(q^2-x^2)^{a+1}} = \frac{1}{1^{a/1}}\left(\frac{-p}{2q}\right)^a \frac{\pi}{2q}\sum_0^\infty \frac{(a-n+1)^{2n/1}}{1^{n/1}}\left(\frac{-1}{2pq}\right)^n Sin\left\{\frac{a-n}{2}\pi+pq\right\}$
(VIII, 490).

1) $\int Sin\, px \frac{dx}{(q^2+x^2)x} = \frac{\pi}{2q^2}(1-e^{-pq})$ (VIII, 441).

2) $\int Sin^2 2srx\,.\,Tg\, rx \frac{dx}{(q^2+x^2)x} = \frac{\pi}{4q^2}(1-e^{-4sqr})\frac{1-e^{-2qr}}{1+e^{-2qr}}$ (H, 174).

3) $\int Sin^2 srx\,.\,Cot\, rx \frac{dx}{(q^2+x^2)x} = \frac{\pi}{4q^2}\left\{2s-(1-e^{-2sqr})\frac{1+e^{-2qr}}{1-e^{-2qr}}\right\}$ (H, 172).

4) $\int Sin\, px \frac{dx}{(q^2-x^2)x} = \frac{\pi}{2q^2}(1-Cos\, pq)$ (H, 139).

5) $\int Sin^2 2srx\,.\,Tg\, rx \frac{dx}{(q^2-x^2)x} = -\frac{\pi}{4q^2} Sin\, 4sqr\,.\,Tg\, qr$ (H, 174).

6) $\int Sin^2 srx\,.\,Cot\, rx \frac{dx}{(q^2-x^2)x} = \frac{\pi}{4q^2}\{2s - Sin\, 2sqr\,.\,Cot\, qr\}$ (H, 172).

7) $\int Sin\, 2px \frac{dx}{(q^4+x^4)x} = \frac{\pi}{2q^4}\{1-e^{-pq\sqrt{2}}\, Cos(pq\sqrt{2})\}$ (VIII, 527).

8) $\int Sin^2 2srx\,.\,Tg\, rx \frac{dx}{(4q^4+x^4)x} = \frac{\pi}{8q^4}\, \frac{1-e^{-4qr}-e^{-4sqr}Cos\, 4sqr - 2e^{-(2s+1)2qr}Sin\, 4sqr\,.\,Sin\, 2qr + e^{-(s+1)4qr}\, Cos\, 4sqr}{1+2e^{-2qr}\, Cos\, 2qr + e^{-4qr}}$ (H, 174).

9) $\int Sin^2 srx\,.\,Cot\, rx \frac{dx}{(4q^4+x^4)x} = \frac{\pi}{8q^4}\left\{2s - \frac{1-e^{-4qr}-e^{-2sqr}Cos\, 2sqr + 2e^{-(s+1)2qr}Sin\, 2sqr\,.\,Sin\, 2qr + e^{-(s+2)2qr}\, Cos\, 2sqr}{1-2e^{-2qr}\, Cos\, 2qr + e^{-4qr}}\right\}$ (H, 172).

10) $\int Sin\, px \frac{dx}{(q^4-x^4)x} = \frac{\pi}{4q^4}(2-e^{-pq}-Cos\, pq)$ (H, 139).

11) $\int Sin^2 2srx\,.\,Tg\, rx \frac{dx}{(q^4-x^4)x} = \frac{\pi}{8q^4}\left\{(1-e^{-4sqr})\frac{1-e^{-2qr}}{1+e^{-2qr}} - Sin\, 4sqr\,.\,Tg\, qr\right\}$ (H, 175).

12) $\int Sin^2 srx\,.\,Cot\, rx \frac{dx}{(q^4-x^4)x} = \frac{\pi}{8q^4}\left\{4s - Sin\, 2sqr\,.\,Cot\, qr - (1-e^{-2sqr})\frac{1+e^{-2qr}}{1-e^{-2qr}}\right\}$ (H, 172).

13) $\int Sin^2 px \frac{dx}{(q^2+x^2)x^2} = \frac{\pi}{4q^2}\left\{2p - \frac{1}{q}(1-e^{-2pq})\right\}$ V. T. 172, N. 1.

14) $\int Sin^2 px \frac{dx}{(q^2-x^2)x^2} = \frac{\pi}{4q^2}\left\{2p - \frac{1}{q}\, Sin\, 2pq\right\}$ V. T. 172, N. 4.

15) $\int Sin\, px \frac{dx}{(1+x^2)x^{1-q}} = \frac{1}{4}(-1)^{q-1}\pi e^p\, Cosec\left(\frac{q-1}{2}\pi\right) =$ 16) $-\int Cos\, px \frac{dx}{(1+x^2)x^{2-q}}$ (IV, 294).

17) $\int Sin\, px \frac{dx}{(q^2+x^2)x^{2a-1}} = (-1)^a \frac{\pi}{2q^{2a}}(e^{-pq}-1) =$ 18) $q\int (Cos\, px - 1)\frac{dx}{(q^2+x^2)x^{2a}}$ (VIII, 586).

19) $\int Sin\, px \frac{dx}{(1-x^2)x^{1-q}} = \frac{1}{8}\pi\, Sin\left(\frac{q-1}{2}\pi - p\right). Cosec\left(\frac{q-1}{2}\pi\right)$ (IV, 294).

20) $\int Cos\, px \frac{dx}{(1-x^2)x^{2-q}} = -\frac{1}{8}\pi\, Cos\left(\frac{q-1}{2}\pi - p\right). Cosec\left(\frac{q-1}{2}\pi\right)$ (IV, 294).

21) $\int Cos\left(px + \frac{1}{2}r\pi\right)\frac{dx}{(q^2+x^2)x^r} = \frac{\pi}{2q^{r+1}}e^{-pq}$ (IV, 294).

22) $\int Sin\, px \frac{dx}{(q^2+x^2)^2 x} = \frac{\pi}{2q^4}\left\{1 - \frac{1}{2}e^{-pq}(2+pq)\right\}$ (VIII, 527).

F. Alg. rat. fract. à dén. prod. de bin. et mon.; Circ. Dir. en num. d' autre forme. TABLE 173. Lim. 0 et ∞.

1) $\int Sin^s rx .. Sin^{s_1} r_1 x \ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi - (sr+s_1r_1+\ldots)x\right\}\frac{dx}{(q^2+x^2)x} =$
$= \frac{\pi}{2^{1+s+s_1+\ldots}q^2}(1-e^{-2qr})^s(1-e^{-2qr_1})^{s_1}\ldots$ (H, 147).

2) $\int Cos^s rx . Cos^{s_1} r_1 x \ldots Sin\{(sr+s_1r_1+\ldots)x\}\frac{dx}{(q^2+x^2)x} = \frac{\pi}{2q^2}\{1 - 2^{-s-s_1-\ldots}$
$(1+e^{-2qr})^s(1+e^{-2qr_1})^{s_1}\ldots\}$ (H, 145).

3) $\int Sin^s rx . Sin^{s_1} r_1 x \ldots Cos^t px . Cos^{t_1} p_1 x \ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi - (sr+s_1r_1+\ldots+\right.$
$\left.+tp+t_1p_1+\ldots)x\right\}\frac{dx}{(q^2+x^2)x} = \frac{\pi}{2^{1+s+s_1+\ldots+t+t_1+\ldots}q^2}(1-e^{-2qr})^s(1-e^{-2qr_1})^{s_1}\ldots$
$\ldots(1+e^{-2pq})^t(1+e^{-2p_1q})^{t_1}\ldots$ (H, 149).

4) $\int Sin^s rx . Sin^{s_1} r_1 x \ldots Cos^t px . Cos^{t_1} p_1 x \ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi - ux\right\}\frac{dx}{(q^2+x^2)x} =$
$= \frac{\pi}{2^{1+s+s_1+\ldots+t+t_1+\ldots}q^2}(e^{qr}-e^{-qr})^s(e^{qr_1}-e^{-qr_1})^{s_1}\ldots(e^{pq}+e^{-pq})^t(e^{p_1q}+e^{-p_1q})^{t_1}\ldots e^{-qu}$
(H, 162).

5) $\int Sin^s rx . Sin^{s_1} r_1 x \dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots)x\right\}\frac{dx}{(q^2-x^2)x}=$

$=\frac{\pi}{2q^2} Sin^s qr . Sin^{s_1} qr_1 \dots Cos\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots)q\right\}$ (H, 147).

6) $\int Cos^s rx . Cos^{s_1} r_1 x \dots Sin\{(sr+s_1r_1+\dots)\}\frac{dx}{(q^2-x^2)x}=\frac{\pi}{2q^2}\Big[1-Cos^s qr . Cos^{s_1} qr_1 \dots$

$\dots Cos\{(sr+s_1r_1+\dots)q\}\Big]$ (H, 145).

7) $\int Sin^s rx . Sin^{s_1} r_1 x \dots Cos^t px . Cos^{t_1} p_1 x \dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots+\right.$

$\left.+tp+t_1p_1+\dots)x\right\}\frac{dx}{(q^2-x^2)x}=\frac{\pi}{2q^2} Sin^s qr . Sin^{s_1} qr_1 \dots Cos^t pq . Cos^{t_1} p_1 q \dots$

$\dots Cos\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots+tp+t_1p_1+\dots)q\right\}$ (H, 149).

8) $\int Sin^s rx . Sin^{s_1} r_1 x \dots Cos^t px . Cos^{t_1} p_1 x \dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-ux\right\}\frac{dx}{(q^2-x^2)x}=$

$=\frac{\pi}{2q^2} Sin^s qr . Sin^{s_1} qr_1 \dots Cos^t pq . Cos^{t_1} p_1 q \dots Cos\left\{(s+s_1+\dots)\frac{1}{2}\pi-qu\right\}$ (H, 163).

9) $\int Sin^s rx . Sin^{s_1} r_1 x \dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots)x\right\}\frac{dx}{(4q^4+x^4)x}=$

$=\frac{\pi}{2^{3+s+s_1+\dots}q^4}(1-2e^{-2qr}Cos2qr+e^{-4qr})^{\frac{1}{2}s}(1-2e^{-2qr_1}Cos2qr_1+e^{-4qr_1})^{\frac{1}{2}s_1}\dots$

$\dots Cos\left\{s\, Arctg\left(\frac{Sin2qr}{e^{2qr}-Cos2qr}\right)+s_1\, Arctg\left(\frac{Sin2qr_1}{e^{2qr_1}-Cos2qr_1}\right)+\dots\right\}$ (H, 147).

10) $\int Cos^s rx . Cos^{s_1} r_1 x \dots Sin\{(sr+s_1r_1+\dots)x\}\frac{dx}{(4q^4+x^4)x}=\frac{\pi}{8q^4}\Big\{1-2^{-s-s_1-\dots}$

$(1+2e^{-2qr}Cos2qr+e^{-4qr})^{\frac{1}{2}s}(1+2e^{-2qr_1}Cos2qr_1+e^{-4qr_1})^{\frac{1}{2}s_1}\dots$

$\dots Cos\left\{s\, Arctg\left(\frac{Sin2qr}{e^{2qr}+Cos2qr}\right)+s_1\, Arctg\left(\frac{Sin2qr_1}{e^{2qr_1}+Cos2qr_1}\right)+\dots\right\}\Big\}$ (H, 145).

11) $\int Sin^s rx . Sin^{s_1} r_1 x \dots Cos^t px . Cos^{t_1} p_1 x \dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots+\right.$

$\left.+tp+t_1p_1+\dots)x\right\}\frac{dx}{(4q^4+x^4)x}=\frac{\pi}{2^{3+s+s_1+\dots+t+t_1+\dots}q^4}(1-2e^{-2qr}Cos2qr+e^{-4qr})^{\frac{1}{2}s}$

$(1-2e^{-2qr_1}Cos2qr_1+e^{-4qr_1})^{\frac{1}{2}s_1}\dots(1+2e^{-2pq}Cos2pq+e^{-4pq})^{\frac{1}{2}t}(1+2e^{-2p_1q}$

$$Cos 2p_1q+e^{-4p_1q})^{\frac{1}{2}t_1}\ldots Cos\left\{t\, Arctg\left(\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}\right)+t_1\, Arctg\left(\frac{Sin\,2p_1q}{e^{2p_1q}+Cos\,2p_1q}\right)+\ldots-\right.$$
$$\left.-s\, Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)-s_1\, Arctg\left(\frac{Sin\,2qr_1}{e^{2qr_1}-Cos\,2qr_1}\right)-\ldots\right\} \text{ (H, 149).}$$

12) $$\int Sin^s rx\,.\,Sin^{s_1} r_1x\ldots Cos^t px\,.\,Cos^{t_1} p_1x\ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi-ux\right\}\frac{dx}{(4q^4+x^4)x}=$$
$$=\frac{\pi}{2^{3+s+s_1+\ldots+t+t_1+\ldots}q^4}(e^{2qr}-2\,Cos\,2qr+e^{-2qr})^{\frac{1}{2}s}(e^{2qr_1}-2\,Cos\,2qr_1+e^{-2qr_1})^{\frac{1}{2}s_1}\ldots$$
$$\ldots(e^{2pq}+2\,Cos\,2pq+e^{-2pq})^{\frac{1}{2}t}(e^{2p_1q}+2\,Cos\,2p_1q+e^{-2p_1q})^{\frac{1}{2}t_1}\ldots e^{-qu}$$
$$Cos\left\{t\, Arctg\left(\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}\right)+t_1\, Arctg\left(\frac{Sin\,2p_1q}{e^{2p_1q}+Cos\,2p_1q}\right)+\ldots-s\, Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)-\right.$$
$$\left.-s_1\, Arctg\left(\frac{Sin\,2qr_1}{e^{2qr_1}-Cos\,2qr_1}\right)-\ldots\right\} \text{ (H, 163).}$$

13) $$\int Sin^s rx\,.\,Sin^{s_1} r_1x\ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots)x\right\}\frac{dx}{(q^4-x^4)x}=$$
$$=\frac{\pi}{4q^4}\left\{2^{-s-s_1-\ldots}(1+e^{-2qr})^s(1-e^{-2qr_1})^{s_1}\ldots+Sin^s qr\,.\,Sin^{s_1} qr_1\ldots\right.$$
$$\left.\ldots Cos\left\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots)q\right\}\right\} \text{ (H, 147).}$$

14) $$\int Cos^s rx\,.\,Cos^{s_1} r_1x\ldots Sin\{(sr+s_1r_1+\ldots)x\}\frac{dx}{(q^4-x^4)x}=\frac{\pi}{4q^4}\left\{2-2^{-s-s_1-\ldots}(1+e^{-2qr})^s\right.$$
$$\left.(1-e^{-2qr_1})^{s_1}\ldots-Cos^s qr\,.\,Cos^{s_1} qr_1\ldots Cos\{(sr+s_1r_1+\ldots)q\}\right\} \text{ (H, 145).}$$

15) $$\int Sin^s rx\,.\,Sin^{s_1} r_1x\ldots Cos^t px\,.\,Cos^{t_1} p_1x\ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots+\right.$$
$$\left.+tp+t_1p_1+\ldots)x\right\}\frac{dx}{(q^4-x^4)x}=\frac{\pi}{4q^4}\left\{2^{-s-s_1-\ldots-t-t_1-\ldots}(1-e^{-2qr})^s(1-e^{-2qr_1})^{s_1}\ldots\right.$$
$$\ldots(1+e^{-2pq})^t(1+e^{-2p_1q})^{t_1}\ldots+Sin^s qr\,.\,Sin^{s_1} qr_1\ldots Cos^t pq\,.\,Cos^{t_1} p_1q\ldots$$
$$\left.\ldots Cos\left\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots+tp+t_1p_1+\ldots)q\right\}\right\} \text{ (H, 149).}$$

16) $$\int Sin^s rx\,.\,Sin^{s_1} r_1x\ldots Cos^t px\,.\,Cos^{t_1} p_1x\ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi-ux\right\}\frac{dx}{(q^4-x^4)x}=\frac{\pi}{4q^4}$$
$$\left\{2^{-s-s_1-\ldots-t-t_1-}(e^{qr}-e^{-qr})^s(e^{qr_1}-e^{-qr_1})^{s_1}\ldots(e^{pq}+e^{-pq})^t(e^{p_1q}+e^{-p_1q})^{t_1}\ldots e^{-qu}+\right.$$
$$\left.+Sin^s qr\,.\,Sin^{s_1} qr_1\ldots Cos^t pq\,.\,Cos^{t_1} p_1q\ldots Cos\left\{(s+s_1+\ldots)\frac{1}{2}\pi-qu\right\}\right\} \text{ (H, 163).}$$

Dans 4), 8), 12) et 16) on a $u>sr+s_1r_1+\ldots+tp+t_1p_1+\ldots$

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17) $\int\left\{\frac{Sin\,x}{x}-\frac{1}{1+x}\right\}\frac{dx}{x}=1-A$ V. T. 158, N. 3 et T. 173, N. 18.

18) $\int\left\{Cos\,x-\frac{1}{1+x}\right\}\frac{dx}{x}=-A$ (VIII, 457).

19) $\int\left\{\frac{Cos\,x-1}{x^2}+\frac{1}{2(1+x)}\right\}\frac{dx}{x}=\frac{1}{2}A-\frac{3}{4}$ (IV, 293).

20) $\int\{Cos\,qx-Cos\,px\}\frac{dx}{(1+x^2)x^2}=\frac{1}{2}\pi(e^{-p}-e^{-q})+\frac{1}{2}\pi(p-q)$ (IV, 294).

21) $\int\left\{Cos\,x-\frac{1}{1+x^2}\right\}\frac{dx}{x}=-A$ (VIII, 671). 22) $\int\left\{Cos(x^2)-\frac{1}{1+x^2}\right\}\frac{dx}{x}=-\frac{1}{2}A$ (VIII, 671).

23) $\int\left\{Cos(x^{2^a})-\frac{1}{1+x^2}\right\}\frac{dx}{x}=-\frac{1}{2^a}A=$ 24) $\int\left\{Cos(x^{2^a})-\frac{1}{1+x^{2^{a+1}}}\right\}\frac{dx}{x}$ (VIII, 701).

F. Alg. rat. fract. à dén. prod. de binôm.; Circ. Dir. en num. à un fact. *Sin x*. TABLE 174. Lim. 0 et ∞.

1) $\int Sin\,px\frac{x\,dx}{(q^2+x^2)(r^2+x^2)}=\frac{\pi}{2(q^2-r^2)}(e^{-pr}-e^{-pq})$ (VIII, 330).

2) $\int Sin\,px\frac{x^3\,dx}{(q^2+x^2)(r^2+x^2)}=\frac{\pi}{2(q^2-r^2)}(q^2e^{-pq}-r^2e^{-pr})$ (VIII, 330).

3) $\int Sin\,px\frac{x\,dx}{(q^2-x^2)(r^2-x^2)}=\frac{\pi}{2(q^2-r^2)}\{Cos\,pq-Cos\,pr\}$ (VIII, 331).

4) $\int Sin\,px\frac{x^3\,dx}{(q^2-x^2)(r^2-x^2)}=\frac{\pi}{2(q^2-r^2)}\{q^2\,Cos\,pq-r^2\,Cos\,pr\}$ (VIII, 331*).

5) $\int Sin\,px\frac{x\,dx}{(q^2+x^2)(q^4-x^4)}=\frac{\pi}{8q^4}\{(1+pq)e^{-pq}-Cos\,pq\}$

6) $\int Sin\,px\frac{x^3\,dx}{(q^2+x^2)(q^4-x^4)}=\frac{\pi}{8q^2}\{(1-pq)e^{-pq}-Cos\,pq\}$

7) $\int Sin\,px\frac{x^5\,dx}{(q^2+x^2)(q^4-x^4)}=\frac{\pi}{8}\{(pq-3)e^{-pq}-Cos\,pq\}$

Sur 5) à 7) voyez V. T. 161, N. 13, 15 et T. 170, N. 3, 4.

8) $\int Sin\,px\frac{dx}{x(x^2+2^2)(x^2+4^2)\dots(x^2+4a^2)}=\frac{\pi}{2^{2a}}\frac{(-1)^a}{1^{2a|1}}\sum_0^a(-1)^n\binom{2a}{n}e^{2(n-a)p}$

(VIII, 434).

$$x\frac{x\,dx}{(x^2+1^2)(x^2+3^2)\ldots\{x^2+(2a+1)^2\}}=\frac{\pi}{2^{2a}}\frac{(-1)^a}{1^{2a+1/1}}\sum_0^a(-1)^n\binom{2a+1}{n}(2a+1-2n)e^{(2n-2a-1)p}$$ (VIII, 434).

$$x.\left\{\frac{p^2}{(r+x)^q}+\frac{q(q+1)}{(r+x)^{q+2}}\right\}dx=pr^{-q}$$ (IV, 295).

$$x\frac{(r-xi)^{-q}-(r+xi)^{-q}}{2i}dx=\frac{\pi}{2\Gamma(q)}p^{q-1}e^{-pr}$$ (VIII, 445).

$$x\frac{(r-xi)^{-q}+(r+xi)^{-q}}{2}x^{2a-1}dx=(-1)^{a-1}\frac{\pi}{2\Gamma(q)}\frac{d^{2a-1}}{dp^{2a-1}}.p^{q-1}e^{-pr}$$ V. T. 175, N. 11.

$$x\frac{(r-xi)^{-q}-(r+xi)^{-q}}{2i}x^{2a}dx=(-1)^a\frac{\pi}{2\Gamma(q)}\frac{d^{2a}}{dp^{2a}}.p^{q-1}e^{-pr}$$ V. T. 174, N. 11.

$$\left(\frac{1}{2}a\pi+px\right)\frac{(r-xi)^{-q}-(r+xi)^{-q}}{2i}x^a dx=\frac{\pi}{2\Gamma(q)}\frac{d^a}{dp^a}.p^{q-1}e^{-pr}$$ V. T. 174, N. 13 et T. 175, N. 12.

$$px\frac{dx}{(q^2+x^2)(r^2+x^2)}=\frac{\pi}{4qr(q^2-r^2)}\{q-r+re^{-2pq}-qe^{-2pr}\}$$ (VIII, 539).

$$px\frac{dx}{(q^2-x^2)(r^2-x^2)}=\frac{\pi}{4qr(q^2-r^2)}\{r\,Sin\,pq-q\,Sin\,pr\}$$ (VIII, 539).

$$\frac{dx}{(q^2+x^2)(r^2+x^2)}=\frac{\pi}{2qr(q^2-r^2)}(qe^{-pr}-re^{-pq})$$ (VIII, 331).

$$\frac{x^2\,dx}{(q^2+x^2)(r^2+x^2)}=\frac{\pi}{2(q^2-r^2)}(qe^{-pq}-re^{-pr})$$ (VIII, 331).

$$\frac{dx}{(q^2-x^2)(r^2-x^2)}=\frac{\pi}{2qr(q^2-r^2)}(q\,Sin\,pr-r\,Sin\,pq)$$ (VIII, 331).

$$\frac{x^2\,dx}{(q^2-x^2)(r^2-x^2)}=\frac{\pi}{2(q^2-r^2)}(r\,Sin\,pr-q\,Sin\,pq)$$ (VIII, 331).

$$\frac{dx}{(q^2+x^2)(q^4-x^4)}=\frac{\pi}{8q^5}\{Sin\,pq+(pq+2)e^{-pq}\}$$

$$\frac{x^2\,dx}{(q^2+x^2)(q^4-x^4)}=\frac{\pi}{8q^3}(Sin\,pq-pqe^{-pq})$$

$$\frac{x^4\,dx}{(q^2+x^2)(q^4-x^4)}=\frac{\pi}{8q}\{Sin\,pq+(pq-2)e^{-pq}\}$$

Sur 5) à 7) voyez T. 161, N. 16, 18 et T. 170, N. 7, 8.

8) $\int Cos\,px \frac{dx}{(x^2+1^2)(x^2+3^2)\dots\{x^2+(2a+1)^2\}} = \frac{(-1)^a}{1^{2a+1/1}} \frac{\pi}{2^{2a+1}} \sum_0^a (-1)^n \binom{2a+1}{n} e^{(2n-2a-1)p}$ (VIII, 434).

9) $\int Cos\,px.\left\{\frac{p^2}{(r+x)^q} + \frac{q(q+1)}{(r+x)^{q+2}}\right\} dx = \frac{q}{r^{q+1}}$ (IV, 295).

10) $\int Cos\,px \frac{(r-xi)^{-q}+(r+xi)^{-q}}{2} dx = \frac{\pi}{2\Gamma(q)} p^{q-1} e^{-pr}$ (VIII, 445).

11) $\int Cos\,px \frac{(r-xi)^{-q}+(r+xi)^{-q}}{2} x^{2a} dx = \frac{1}{2}(-1)^a \frac{\pi}{\Gamma(q)} \frac{d^{2a}}{dp^{2a}}.p^{q-1} e^{-pr}$ V. T. 175, N. 10.

12) $\int Cos\,px \frac{(r-xi)^{-q}-(r+xi)^{-q}}{2i} x^{2a-1} dx = (-1)^{a-\frac{1}{2}} \frac{\pi}{2\Gamma(q)} \frac{d^{2a-1}}{dp^{2a-1}}.p^{q-1} e^{-pr}$ V. T. 174, N. 11.

13) $\int Cos\left\{\frac{1}{2}a\pi+px\right\} \frac{(r-xi)^{-q}+(r+xi)^{-q}}{2} x^a dx = \frac{\pi}{2\Gamma(q)} \frac{d^a}{dp^a}.p^{q-1} e^{-pr}$ V. T. 174, N. 12 et T. 175, N. 11.

14) $\int Cos^2 px \frac{dx}{(q^2+x^2)(r^2+x^2)} = \frac{\pi}{4qr(q^2-r^2)}(q-r+qe^{-2pr}-re^{-2pq})$ (VIII, 539).

15) $\int Cos^2 px \frac{dx}{(q^2-x^2)(r^2-x^2)} = \frac{\pi}{4qr(q^2-r^2)}(q\,Sin\,pr - r\,Sin\,pq)$ (VIII, 539).

16) $\int \left\{\frac{(r-xi)^{-q}-(r+xi)^{-q}}{2i} Sin\,px + \frac{(r-xi)^{-q}+(r+xi)^{-q}}{2} Cos\,px\right\} dx = \frac{\pi}{\Gamma(q)} p^{q-1} e^{-pr}$ $[p>0]$, $=0$ $[p<0]$ V. T. 174, N. 11 et T. 175, N. 10.

17) $\int Sin\,px.\left\{\frac{r+x}{q^2+(r+x)^2} - \frac{r-x}{q^2+(r-x)^2}\right\} dx = \pi e^{-pr} Cos\,pr$ (IV, 294).

F. Alg. rat. fract. à dén. polynôme; Circ. Dir. en num. TABLE 176. Lim. 0 et ∞.

1) $\int Sin\,px \frac{x\,dx}{(x^2+q^2)^2+r^2} = \frac{\pi}{2r} e^{-p\lambda} Sin\,p\mu$ V. T. 176, N. 3.

2) $\int Sin\,px \frac{x^2+q^2}{(x^2+q^2)^2+r^2} x\,dx = \frac{\pi}{2} e^{-p\lambda} Cos\,p\mu$ V. T. 176, N. 4.

3) $\int Cos\,px \frac{dx}{(x^2+q^2)^2+r^2} = \frac{\pi}{2r} \frac{e^{-p\lambda}}{\sqrt{q^4+r^2}} (\mu\,Cos\,p\mu + \lambda\,Sin\,p\mu)$ (VIII, 526).

4) $\int Cos\,px \frac{x^2+q^2}{(x^2+q^2)^2+r^2}\,dx = \frac{\pi}{2}\,\frac{e^{-p\lambda}}{\sqrt{q^4+r^2}}(\lambda\,Cos\,p\mu - \mu\,Sin\,p\mu)$ (VIII, 526).

Dans 1) à 4) on a $\left[\begin{matrix}2\lambda^2 = \sqrt{q^4+r^2}+q^2,\\ 2\mu^2 = \sqrt{q^4+r^2}-q^2\end{matrix}\right]$.

5) $\int Sin\,px \frac{x\,dx}{x^4+2r^2x^2\,Cos\,2\lambda+r^4} = \frac{\pi}{2r^2}e^{-pr\,Cos\,\lambda}\,Cosec\,2\lambda\,.\,Sin\,(pr\,Sin\,\lambda)$ (VIII, 526).

6) $\int Sin\,px \frac{x^3\,dx}{x^4+2r^2x^2\,Cos\,2\lambda+r^4} = \frac{\pi}{2}e^{-pr\,Cos\,\lambda}\,Cosec\,2\lambda\,.\,Sin\,(2\lambda - pr\,Sin\,\lambda)$ (VIII, 526).

7) $\int Cos\,px \frac{dx}{x^4+2r^2x^2\,Cos\,2\lambda+r^4} = \frac{\pi}{2r^3}e^{-pr\,Cos\,\lambda}\,Cosec\,2\lambda\,.\,Sin\,(\lambda + pr\,Sin\,\lambda)$ (VIII, 526).

8) $\int Cos\,px \frac{x^2\,dx}{x^4+2r^2x^2\,Cos\,2\lambda+r^4} = \frac{\pi}{2r}e^{-pr\,Cos\,\lambda}\,Cosec\,2\lambda\,.\,Sin\,(\lambda - pr\,Sin\,\lambda)$ (VIII, 526).

9) $\int Sin\,px \frac{dx}{q^3+q^2x+qx^2+x^3} = \frac{1}{4q^2}\{e^{-pq}\,Ei(pq) - e^{pq}\,Ei(-pq) + 2\,Ci(pq)\,.\,Sin\,pq -$

$- 2\,Si(pq)\,.\,Cos\,pq - \pi(e^{-pq} - Cos\,pq)\}$

10) $\int Sin\,px \frac{x\,dx}{q^3+q^2x+qx^2+x^3} = \frac{1}{4q}\{e^{-pq}\,Ei(pq) - e^{pq}\,Ei(-pq) - 2\,Ci(pq)\,.\,Sin\,pq +$

$+ 2\,Si(pq)\,.\,Cos\,pq + \pi(e^{-pq} - Cos\,pq)\}$

11) $\int Sin\,px \frac{x^2\,dx}{q^3+q^2x+qx^2+x^3} = \frac{1}{4}\{e^{pq}\,Ei(-pq) - e^{-pq}\,Ei(pq) + 2\,Ci(pq)\,.\,Sin\,pq -$

$- 2\,Si(pq)\,.\,Cos\,pq + \pi(e^{-pq} + Cos\,pq)\}$ Sur 9) à 11) voyez T. 160, N. 1, 3, 4.

12) $\int Sin\,px \frac{dx}{q^3-q^2x+qx^2-x^3} = \frac{1}{4q^2}\{e^{-pq}\,Ei(pq) - e^{pq}\,Ei(-pq) + 2\,Ci(pq)\,.\,Sin\,pq -$

$- 2\,Si(pq)\,.\,Cos\,pq + \pi(e^{-pq} - Cos\,pq)\}$

13) $\int Sin\,px \frac{x\,dx}{q^3-q^2x+qx^2-x^3} = \frac{1}{4q}\{e^{pq}\,Ei(-pq) - e^{-pq}\,Ei(pq) + 2\,Ci(pq)\,.\,Sin\,pq -$

$- 2\,Si(pq)\,.\,Cos\,pq + \pi(e^{-pq} - Cos\,pq)\}$

14) $\int Sin\,px \frac{x^2\,dx}{q^3-q^2x+qx^2-x^3} = \frac{1}{4}\{e^{pq}\,Ei(-pq) - e^{-pq}\,Ei(pq) + 2\,Ci(pq)\,.\,Sin\,pq -$

$- 2\,Si(pq)\,.\,Cos\,pq - \pi(e^{-pq} + Cos\,pq)\}$ Sur 12) à 14) voyez T. 160, N. 3, 4 et T. 161, N. 1.

15) $\int Cos\,px \frac{dx}{q^3+q^2x+qx^2+x^3} = \frac{1}{4q^2}\{e^{-pq}\,Ei(pq) + e^{pq}\,Ei(-pq) - 2\,Ci(pq)\,.\,Cos\,pq -$

$- 2\,Si(pq)\,.\,Sin\,pq + \pi(e^{-pq} + Sin\,pq)\}$

$$+\frac{3}{\sqrt{p}}-\frac{3}{2\sqrt{2q-p}}\Big\}\sqrt{\frac{\pi}{2}}\,[3p>2q>p], =\frac{1}{8}\Big\{-\frac{1}{2\sqrt{2q+3p}}+\frac{1}{\sqrt{3p}}+\frac{1}{2\sqrt{3p-2q}}-$$

$$-\frac{3}{2\sqrt{2q+p}}+\frac{3}{\sqrt{p}}+\frac{3}{2\sqrt{p-2q}}\Big\}\sqrt{\frac{\pi}{2}}\,[p>2q]$$ V. T. 177, N. 2.

23) $$\int Sin\,qx\,.\,Cos\,px\frac{dx}{x\sqrt{x}}=\{\sqrt{p+q}+\sqrt{q-p}\}\sqrt{\frac{\pi}{2}}\,[q>p], =\sqrt{q\pi}\,[q=p], =$$

$$=\{\sqrt{q+p}-\sqrt{p-q}\}\sqrt{\frac{\pi}{2}}\,[q<p]$$ V. T. 177, N. 10.

24) $$\int Sin\,px\frac{dx}{\sqrt[q]{x^{q-1}}}=\frac{1}{\sqrt[q]{p}}\Gamma\left(\frac{1}{q}\right)Sin\frac{\pi}{2q}$$ V. T. 150, N. 1.

25) $$\int Cos\,px\frac{dx}{\sqrt[q]{x^{q-1}}}=\frac{1}{\sqrt[q]{p}}\Gamma\left(\frac{1}{q}\right)Cos\frac{\pi}{2q}$$ V. T. 150, N. 2.

26) $$\int Sin\,px\frac{dx}{(q+rx)\sqrt{x}}=\frac{-\pi}{\sqrt{qr}}Sin\frac{pq}{r}+\frac{1}{q}\sqrt{\frac{\pi}{r}}\,.\sum_1^\infty\frac{1}{1^{n/1}}Sin\left(\frac{2n-1}{4}\pi\right).\left(\frac{2pq}{r}\right)^n$$ (IV, 312).

27) $$\int Cos\,px\frac{dx}{(q+rx)\sqrt{x}}=\frac{\pi}{\sqrt{qr}}Cos\frac{pq}{r}+\frac{1}{q}\sqrt{\frac{\pi}{r}}\,.\sum_1^\infty\frac{(-1)^n}{1^{n/1}}Cos\left(\frac{2n-1}{4}\pi\right).\left(\frac{2pq}{r}\right)^n$$ (IV, 312).

28) $$\int Cos(2\sqrt{px}).(1-x)^{q-1}\frac{dx}{\sqrt{x}}=B\left(\frac{1}{2},q\right)\sum_0^\infty\frac{(-1)^n}{1^{n/1}}\,\frac{p^n}{(q+\frac{1}{2})^{n/1}}$$ (VIII, 514).

29) $$\int Cos\left(\frac{\pi}{4}-px\right)\frac{dx\sqrt{x}}{q^2+x^2}=\frac{\pi}{2\sqrt{q}}e^{-pq}$$ Liouville, V. T. 160, N. 21.

F. Alg. irrat. fract.; Circ. Dir. en num. polyn.; Circ. de x. TABLE 178. Lim. 0 et ∞.

1) $$\int(Sin^2 qx-Sin^2 px)\frac{dx}{\sqrt{x}}=\frac{1}{4}\left(\sqrt{\frac{\pi}{p}}-\sqrt{\frac{\pi}{q}}\right)$$ (IV, 310).

2) $$\int(Sin^4 qx-Sin^4 px)\frac{dx}{\sqrt{x}}=\frac{1}{32}(8-\sqrt{2})\left(\sqrt{\frac{\pi}{p}}-\sqrt{\frac{\pi}{q}}\right)$$ V. T. 177, N. 2.

3) $$\int(Cos^2 qx-Sin^2 px)\frac{dx}{\sqrt{x}}=\frac{1}{4}\left(\sqrt{\frac{\pi}{p}}+\sqrt{\frac{\pi}{q}}\right)$$ V. T. 177, N. 2 et T. 178, N. 1.

4) $$\int(Cos^4 qx-Sin^4 px)\frac{dx}{\sqrt{x}}=\frac{1}{4}\left(\sqrt{\frac{\pi}{q}}+\sqrt{\frac{\pi}{p}}\right)+\frac{1}{16}\left(\sqrt{\frac{\pi}{2q}}-\sqrt{\frac{\pi}{2p}}\right)$$

V. T. 177, N. 2 et T. 178, N. 2.

5) $$\int(Cos^2 qx-Cos^2 px)\frac{dx}{\sqrt{x}}=\frac{1}{4}\left(\sqrt{\frac{\pi}{q}}-\sqrt{\frac{\pi}{p}}\right)$$ V. T. 178, N. 1.

6) $\int (Cos^4 qx - Cos^4 px) \frac{dx}{\sqrt{x}} = \frac{1}{32}(8+\sqrt{2})\left(\sqrt{\frac{\pi}{q}} - \sqrt{\frac{\pi}{p}}\right)$ V. T. 177, N. 2 et T. 178, N. 2.

7) $\int \{Sin(q-x) + Cos(q-x)\} \frac{dx}{\sqrt{x}} = Sin\, q . \sqrt{2\pi}$ (IV, 311).

8) $\int (Sin\, x - x\, Cos\, x) \frac{dx}{x^2 \sqrt{x}} = \frac{1}{3} \sqrt{2\pi}$ (IV, 311).

9) $\int \{Cos(px\sqrt{a}) + Sin(px\sqrt{a})\} \left(\frac{Sin\, x}{x}\right)^a \frac{dx}{\sqrt{x}} = \frac{\sqrt{2\pi}}{1^{a/1}} \sum_0^a (-1)^n \binom{a}{n} (a + p\sqrt{a} - 2n)^{a-\frac{1}{2}}$

10) $\int \{Cos(px\sqrt{a}) - Sin(px\sqrt{a})\} \left(\frac{Sin\, x}{x}\right)^a \frac{dx}{\sqrt{x}} = \frac{\sqrt{2\pi}}{1^{a/1}} \sum_0^a (-1)^n \binom{a}{n} (a - p\sqrt{a} - 2n)^{a-\frac{1}{2}}$

Dans 9) et 10) on a $0 \leqq 2a < 4p + 1$ (IV, 311).

11) $\int (Cos\, px - Sin\, px) \frac{dx}{(q^2 + x^2)\sqrt{x}} = \frac{\pi}{4q} e^{-pq} \sqrt{\frac{2}{q}}$ (IV, 312).

12) $\int (Cos\, px - Sin\, px) \frac{dx\sqrt{x}}{q^2 + x^2} = \frac{\pi}{\sqrt{2q}} e^{-pq}$ V. T. 178, N. 11.

13) $\int (Cos\, px - Sin\, px) \frac{x\, dx \sqrt{x}}{q^2 + x^2} = -\pi e^{-pq} \sqrt{\frac{q}{2}}$ (IV, 313).

14) $\int (Cos\, px - Sin\, px) \frac{dx\sqrt{x}}{(q^2 + x^2)^2} = \left(p + \frac{1}{2q}\right) e^{-pq} \frac{\pi}{2q\sqrt{2q}}$ (IV, 313).

15) $\int (Cos\, px - Sin\, px) \frac{x\, dx\sqrt{x}}{(q^2 + x^2)^2} = \left(\frac{1}{2q} - p\right) e^{-pq} \frac{\pi}{2\sqrt{2q}}$ (IV, 313).

F. Alg. irrat. fract.; Circ. Dir. en num.; Circ. de $x^a \pm x^{-a}$. TABLE 179. Lim. 0 et ∞.

1) $\int Sin\left\{p\left(x - \frac{1}{x}\right)\right\} \frac{dx}{\sqrt{x}} = e^{-2p} \sqrt{\frac{\pi}{2p}} =$ 2) $\int Cos\left\{p\left(x - \frac{1}{x}\right)\right\} \frac{dx}{\sqrt{x}}$ (VIII, 446).

3) $\int \frac{x-1}{x} Sin\left\{p\left(x - \frac{1}{x}\right)\right\} \frac{dx}{\sqrt{x}} = 0 =$ 4) $\int \frac{x+1}{x} Cos\left\{p\left(x - \frac{1}{x}\right)\right\} \frac{dx}{\sqrt{x}}$ (VIII, 446).

5) $\int Sin\left(p^2 x + \frac{q^2}{x}\right) \frac{dx}{\sqrt{x}} = (Cos\, 2pq + Sin\, 2pq) \frac{1}{2p} \sqrt{2\pi}$ (VIII, 428).

6) $\int Sin\left(p^2 x + \frac{q^2}{x}\right) \frac{dx}{x\sqrt{x}} = (Cos\, 2pq + Sin\, 2pq) \frac{1}{2q} \sqrt{2\pi}$ (VIII, 428).

7) $\int Cos\left(p^2 x + \frac{q^2}{x}\right) \frac{dx}{\sqrt{x}} = (Cos\, 2pq - Sin\, 2pq)\frac{1}{2p}\sqrt{2\pi}$ (VIII, 428).

8) $\int Cos\left(p^2 x + \frac{q^2}{x}\right) \frac{dx}{x\sqrt{x}} = (Cos\, 2pq - Sin\, 2pq)\frac{1}{2q}\sqrt{2\pi}$ (VIII, 428).

9) $\int \left(x - \frac{1}{x}\right) Sin\left\{p\left(x^2 - \frac{1}{x^2}\right)\right\}\frac{dx}{x} = 0 =$ 10) $\int \left(x + \frac{1}{x}\right) Cos\left\{p\left(x^2 - \frac{1}{x^2}\right)\right\}\frac{dx}{x}$ V. T. 179, N. 3, 4.

11) $\int Sin\left\{\frac{(px-q)^2}{x}\right\}\frac{dx}{\sqrt{x}} = \frac{1}{2p}\sqrt{2\pi} =$ 12) $\int Cos\left\{\frac{(px-q)^2}{x}\right\}\frac{dx}{\sqrt{x}}$ (VIII, 428).

13) $\int Sin\left\{\frac{(px-q)^2}{x}\right\}\frac{dx}{x\sqrt{x}} = \frac{1}{2q}\sqrt{2\pi} =$ 14) $\int Cos\left\{\frac{(px-q)^2}{x}\right\}\frac{dx}{x\sqrt{x}}$ (VIII, 428).

15) $\int Sin\left\{p\left(x - \frac{1}{x}\right)\right\}\frac{3+x}{(1+x^2)^2}x^2\,dx\sqrt{x} = e^{-2p}\sqrt{2p\pi}$ (IV, 318).

16) $\int Cos\left\{p\left(x - \frac{1}{x}\right)\right\}\frac{3-x}{(1+q^2)^2}x^2\,dx\sqrt{x} = e^{-2p}\sqrt{2p\pi}$ (IV, 318).

F. Alg. rat. fract. à dén. monôme; Circ. Dir. en dén. monôme. TABLE 180. Lim. 0 et ∞.

1) $\int Sin\{(sr+1)x\}.Sin\, srx\frac{dx}{x\, Sin\, rx} = \frac{1}{2}s\pi =$ 2) $\int Sin\{(sr-1)x\}.Sin\, srx\frac{dx}{x\, Sin\, rx}$ (H, 28).

3) $\int Sin^2 srx\frac{dx}{x\, Sin\, rx} = s\pi =$ 4) $\int Sin^2 srx\frac{Cos\, x\, dx}{x\, Sin\, rx}$ (H, 29).

5) $\int Sin\, 2srx\frac{Sin\, x\, dx}{x\, Sin\, rx} = 0$ (H, 29). 6) $\int Sin(p\, Tang\, 2x)\frac{Tg\, x\, dx}{x\, Tg\, 2x} = \frac{\pi}{2}(1 - e^{-p})$ (VIII, 388).

7) $\int \sqrt[3]{Sin\, x . Cos\, x}\frac{dx}{x\, Cos^2 x} = \sqrt[3]{4} . \sqrt[4]{27} . F\left(Sin\frac{\pi}{12}\right)$ (VIII, 388).

8) $\int \frac{Sin\, x}{\sqrt[3]{Cos\, x}}\frac{dx}{x} = 3\sqrt[4]{27} . E\left(Sin\frac{\pi}{12}\right) - \frac{3+3\sqrt{3}}{2\sqrt[4]{3}}F\left(Sin\frac{\pi}{12}\right)$ (VIII, 388).

9) $\int \sqrt[3]{Sin\, x}\frac{dx}{x\, Cos\, x} = \sqrt[4]{27} . F\left(Sin\frac{\pi}{12}\right) =$ 10) $\int \frac{Sin\, x}{\sqrt[3]{Cos^2 x}}\frac{dx}{x}$ (VIII, 388).

11) $\int \frac{Tg\, x}{\sqrt[3]{Cos^2 x}}\frac{dx}{x} = \sqrt[4]{27} . F\left(Sin\frac{\pi}{12}\right) =$ 12) $\int \frac{Tg\, x}{\sqrt[3]{Cos^2 2x}}\frac{dx}{x}$ (VIII, 388).

13) $\int Sin^2 srx . Sin\, x\frac{dx}{x^2\, Sin\, rx} = \frac{1}{2}s\pi =$ 14) $\int Sin^2 srx . Sin^2 x\frac{dx}{x^3\, Sin\, rx}$ (H, 29).

15) $\int \frac{Cos\{(2a-1)x\}}{Cos\, x} \left(\frac{Sin\, x}{x}\right)^{2a} dx = (-1)^{a-1} \frac{2^{2a}-1}{1^{2a/1}} 2^{2a-1} \pi B_{2a-1}$

Hamilton, L. & E. Phil. Mag. 23, 360.

16) $\int \frac{Cos\, 2ax}{Cos\, x} Sin^{2a} x \frac{dx}{x^b} = 0 =$ 17) $\int \frac{Cos\, 2ax}{Cos\, x} Sin^{2a+1} x \frac{dx}{x^b}$

18) $\int \frac{Sin\{(2a-1)x\}}{Cos\, x} Sin^{2a+1} x \frac{dx}{x^b} = (-1)^{\frac{a-b-1}{2}} \frac{\pi}{2^{2a} 1^{b-1/1}} =$ 19) $2 \int \frac{Cos\, 2ax}{Cos\, x} Sin^{2a+2} x \frac{dx}{x^b}$

20) $\int \frac{Cos\, 2ax}{Cos\, x} Sin^{2a+p+1} x \frac{dx}{x^b} = (-1)^{\frac{a-b-1}{2}} \frac{\pi}{2^{2a+p} 1^{b-1/1}} p^{b-1}$ $[p<1]$

Dans 16) à 20) on a $a>b$. Bronwin, L. & E. Phil. Mag. 24, 491.

F. Alg. rat. fract. à dén. monôme; Circ. Dir. en dén. bin. rat. et un fact. au num. TABLE 181. Lim. 0 et ∞.

1) $\int \frac{Sin\, x}{p \pm q\, Cos\, 2x} \frac{dx}{x} = \frac{\pi}{2\sqrt{p^2-q^2}} [p^2>q^2], = 0\, [p^2<q^2]$ (VIII, 386).

2) $\int \frac{Tang\, x}{p \pm q\, Cos\, 2x} \frac{dx}{x} = \frac{\pi}{2\sqrt{p^2-q^2}} [p^2>q^2], = 0\, [p^2<q^2]$ (VIII, 386).

3) $\int \frac{Tg\, x}{p \pm q\, Cos\, 4x} \frac{dx}{x} = \frac{\pi}{2\sqrt{p^2-q^2}} [p^2>q^2], = 0\, [p^2<q^2]$ (VIII, 386).

4) $\int \frac{Sin\, x}{p^2 + Tg^2 x} \frac{dx}{x} = \frac{\pi}{2p(1+p)} =$ 5) $\int \frac{Tg\, x}{p^2 + Tg^2 x} \frac{dx}{x}$ (VIII, 389).

6) $\int \frac{Tg\, x}{p^2 + Tg^2 2x} \frac{dx}{x} = \frac{\pi}{2p(1+p)}$ (VIII, 389*). 7) $\int \frac{Tg^2 x}{p^2 + Tg^2 x} \frac{dx}{x} = \frac{\pi}{2} \frac{1}{1+p}$ (VIII, 389).

8) $\int \frac{Sin\, x}{p^2 Sin^2 x + q^2 Cos^2 x} \frac{dx}{x} = \frac{\pi}{2pq} =$ 9) $\int \frac{Tg\, x}{p^2 Sin^2 x + q^2 Cos^2 x} \frac{dx}{x}$ (VIII, 390).

10) $\int \frac{Tg\, x}{p^2 Sin^2 2x + q^2 Cos^2 2x} \frac{dx}{x} = \frac{\pi}{2pq}$ (VIII, 390*).

11) $\int \frac{Sin^2 x}{p^2 Sin^2 x + q^2 Cos^2 x} \frac{dx}{x} = \frac{\pi}{2p(p+q)}$ (VIII, 390).

12) $\int \frac{Sin\, x}{(p^2 Sin^2 x + q^2 Cos^2 x)^2} \frac{dx}{x} = \frac{\pi}{4} \frac{p^2+q^2}{p^3 q^3} =$ 13) $\int \frac{Tg\, x}{(p^2 Sin^2 x + q^2 Cos^2 x)^2} \frac{dx}{x}$ (VIII, 390).

14) $\int \frac{Tg\, x}{(p^2 Sin^2 2x + q^2 Cos^2 2x)^2} \frac{dx}{x} = \frac{\pi}{4} \frac{p^2+q^2}{p^3 q^3}$ (VIII, 390*).

15) $\int \frac{Sin^3 x}{(p^2 Sin^2 x + q^2 Cos^2 x)^2} \frac{dx}{x} = \frac{\pi}{4p^3 q}$ (VIII, 390).

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16) $\int \frac{Sin\, x}{(p^2\, Sin^2 x + q^2\, Cos^2 x)^2} \frac{dx}{x} = \frac{\pi}{16} \frac{3p^4 + 2p^2 q^2 + 3q^4}{p^5 q^5}$ (VIII, 391).

17) $\int \frac{Tg\, x}{(p^2\, Sin^2 x + q^2\, Cos^2 x)^2} \frac{dx}{x} = \frac{\pi}{16} \frac{3p^4 + 2p^2 q^2 + 3q^4}{p^5 q^5}$ (VIII, 391).

18) $\int \frac{Tg\, x}{(p^2\, Sin^2 2x + q^2\, Cos^2 2x)^2} \frac{dx}{x} = \frac{\pi}{16} \frac{3p^4 + 2p^2 q^2 + 3q^4}{p^5 q^5}$ (VIII, 391).

19) $\int \frac{Sin^3 x}{(p^2\, Sin^2 x + q^2\, Cos^2 x)^2} \frac{dx}{x} = \frac{\pi}{16} \frac{p^2 + 3q^2}{p^5 q^3}$ (VIII, 390).

20) $\int \frac{Sin\, x}{(p^2\, Sin^2 x + q^2\, Cos^2 x)^4} \frac{dx}{x} = \frac{\pi}{32} \frac{5p^6 + 3p^4 q^2 + 3p^2 q^4 + 5q^6}{p^7 q^7}$ (VIII, 391).

21) $\int \frac{Tg\, x}{(p^2\, Sin^2 x + q^2\, Cos^2 x)^4} \frac{dx}{x} = \frac{\pi}{32} \frac{5p^6 + 3p^4 q^2 + 3p^2 q^4 + 5q^6}{p^7 q^7}$ (VIII, 391).

22) $\int \frac{Tg\, x}{(p^2\, Sin^2 2x + q^2\, Cos^2 2x)^4} \frac{dx}{x} = \frac{\pi}{32} \frac{5p^6 + 3p^4 q^2 + 3p^2 q^4 + 5q^6}{p^7 q^7}$ (VIII, 391).

23) $\int \frac{Sin^3 x}{(p^2\, Sin^2 x + q^2\, Cos^2 x)^4} \frac{dx}{x} = \frac{\pi}{32} \frac{p^4 + p^2 q^2 + 5q^4}{p^7 q^5}$ (VIII, 391).

24) $\int \frac{Sin^5 x}{(p^2\, Sin^2 x + q^2\, Cos^2 x)^4} \frac{dx}{x} = \frac{\pi}{32} \frac{p^2 + 5q^2}{p^7 q^3}$ (VIII, 391).

25) $\int \frac{Sin\, x}{(1 + Sin\, \lambda . Cos\, 2x)^{a+1}} \frac{dx}{x} = \frac{1^{a/2}}{1^{a/1}} \frac{\pi}{2} \sum_0^\infty (-1)^n \frac{(n+1)^{n/1}}{(2a-1)^{n/-2}} \binom{a}{2n} \frac{1}{2^n} Sec^{2(a-n)+1} \lambda$ (VIII, 386).

26) $\int \frac{Tg\, x}{(1 + Sin\, \lambda . Cos\, 2x)^{a+1}} \frac{dx}{x} = \frac{1^{a/2}}{1^{a/1}} \frac{\pi}{2} \sum_0^\infty (-1)^n \frac{(n+1)^{n/1}}{(2a-1)^{n/-2}} \binom{a}{2n} \frac{1}{2^n} Sec^{2(a-n)+1} \lambda$ (VIII, 386).

27) $\int \frac{Tg\, x}{(1 + Sin\, \lambda . Cos\, 4x)^{a+1}} \frac{dx}{x} = \frac{1^{a/2}}{1^{a/1}} \frac{\pi}{2} \sum_0^\infty (-1)^n \frac{(n+1)^{n/1}}{(2a-1)^{n/-2}} \binom{a}{2n} \frac{1}{2^n} Sec^{2(a-n)+1} \lambda$ (VIII, 386).

F. Alg. rat. fract. à dén. monôme; Circ. Dir. en dén. bin. rat. et plus. fact. au num. TABLE 182. Lim. 0 et ∞.

1) $\int \frac{Sin\, x . Tg^2 x}{p^2 + Tg^2 x} \frac{dx}{x} = \frac{\pi}{2} \frac{1}{1+p} =$ 2) $\int \frac{Tg^2\, 2x . Tg\, x}{p^2 + Tg^2\, 2x} \frac{dx}{x}$ (VIII, 389*).

3) $\int \frac{Sin\, x . Cos\, x}{p^2\, Sin^2 x + q^2\, Cos^2 x} \frac{dx}{x} = \frac{\pi}{2q(p+q)} =$ 4) $\int \frac{Sin\, x . Cos^2 x}{p^2\, Sin^2 x + q^2\, Cos^2 x} \frac{dx}{x}$ (VIII, 390).

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5) $\int \frac{Tg\,x\,.\,Cos^2 2x}{p^2 Sin^2 2x + q^2 Cos^2 2x} \frac{dx}{x} = \frac{\pi}{2q(p+q)}$ (VIII, 390*).

6) $\int \frac{Sin^2 x\,.\,Tg\,x}{p^2 Sin^2 x + q^2 Cos^2 x} \frac{dx}{x} = \frac{\pi}{2p(p+q)} =$ 7) $4\int \frac{Sin^3 x\,.\,Cos\,x}{p^2 Sin^2 2x + q^2 Cos^2 2x} \frac{dx}{x}$ (VIII, 390).

8) $\int \frac{Sin\,x\,.\,Cos\,x}{(p^2 Sin^2 x + q^2 Cos^2 x)^2} \frac{dx}{x} = \frac{\pi}{4pq^3} =$ 9) $\int \frac{Sin\,x\,.\,Cos^3 x}{(p^2 Sin^2 x + q^2 Cos^2 x)^2} \frac{dx}{x}$ (VIII, 390).

10) $\int \frac{Tg\,x\,.\,Cos^2 2x}{(p^2 Sin^2 2x + q^2 Cos^2 2x)^2} \frac{dx}{x} = \frac{\pi}{4pq^3}$ (VIII, 390*).

11) $\int \frac{Sin^2 x\,.\,Tg\,x}{(p^2 Sin^2 x + q^2 Cos^2 x)^2} \frac{dx}{x} = \frac{\pi}{4p^3 q} =$ 12) $4\int \frac{Sin^3 x\,.\,Cos\,x}{(p^2 Sin^2 2x + q^2 Cos^2 2x)^2} \frac{dx}{x}$ (VIII, 390).

13) $\int \frac{Sin\,x\,.\,Cos\,x}{(p^2 Sin^2 x + q^2 Cos^2 x)^3} \frac{dx}{x} = \frac{\pi}{16} \frac{3p^2+q^2}{p^3 q^5} =$ 14) $\int \frac{Sin\,x\,.\,Cos^3 x}{(p^2 Sin^2 x + q^2 Cos^2 x)^3} \frac{dx}{x}$ (VIII, 391).

15) $\int \frac{Tg\,x\,.\,Cos^2 2x}{(p^2 Sin^2 2x + q^2 Cos^2 2x)^3} \frac{dx}{x} = \frac{\pi}{16} \frac{3p^2+q^2}{p^3 q^5}$ (VIII, 391*).

16) $\int \frac{Sin^2 x\,.\,Tg\,x}{(p^2 Sin^2 x + q^2 Cos^2 x)^3} \frac{dx}{x} = \frac{\pi}{16} \frac{p^2+3q^2}{p^5 q^3} =$ 17) $4\int \frac{Sin^3 x\,.\,Cos\,x}{(p^2 Sin^2 2x + q^2 Cos^2 2x)^3} \frac{dx}{x}$ (VIII, 391).

18) $\int \frac{Sin\,x\,.\,Cos\,x}{(p^2 Sin^2 x + q^2 Cos^2 x)^4} \frac{dx}{x} = \frac{\pi}{32} \frac{5p^4+2p^2q^2+q^4}{p^5 q^7} =$ 19) $\int \frac{Sin\,x\,.\,Cos^3 x}{(p^2 Sin^2 x + q^2 Cos^2 x)^4} \frac{dx}{x}$ (VIII, 391).

20) $\int \frac{Tg\,x\,.\,Cos^2 2x}{(p^2 Sin^2 2x + q^2 Cos^2 2x)^4} \frac{dx}{x} = \frac{\pi}{32} \frac{5p^4+2p^2q^2+q^4}{p^5 q^7}$ (VIII, 391*).

21) $\int \frac{Sin^2 x\,.\,Tg\,x}{(p^2 Sin^2 x + q^2 Cos^2 x)^4} \frac{dx}{x} = \frac{\pi}{32} \frac{p^4+2p^2q^2+5q^4}{p^7 q^5} =$ 22) $4\int \frac{Sin^3 x\,.\,Cos\,x}{(p^2 Sin^2 2x + q^2 Cos^2 2x)^4} \frac{dx}{x}$ (VIII, 391).

23) $\int \frac{Sin\,x\,.\,Cos^3 x}{(p^2 Sin^2 x + q^2 Cos^2 x)^4} \frac{dx}{x} = \frac{\pi}{32} \frac{5p^2+q^2}{p^3 q^7} =$ 24) $\int \frac{Sin\,x\,.\,Cos^5 x}{(p^2 Sin^2 x + q^2 Cos^2 x)^4} \frac{dx}{x}$ (VIII, 392).

25) $\int \frac{Tg\,x\,.\,Cos^4 2x}{(p^2 Sin^2 2x + q^2 Cos^2 2x)^4} \frac{dx}{x} = \frac{\pi}{32} \frac{5p^2+q^2}{p^3 q^7}$ (VIII, 392).

26) $\int \frac{Sin^3 x\,.\,Cos\,x}{(p^2 Sin^2 x + q^2 Cos^2 x)^4} \frac{dx}{x} = \frac{\pi}{32} \frac{p^2+q^2}{p^5 q^5} =$ 27) $\int \frac{Sin^3 x\,.\,Cos^3 x}{(p^2 Sin^2 x + q^2 Cos^2 x)^4} \frac{dx}{x}$ (VIII, 391).

F. Alg. rat. fract. à dén. monôme;
Circ. Dir. en dén. bin. rat. et plus. fact. au num. **TABLE 182, suite.** Lim. 0 et ∞.

28) $\int \frac{Tg\,x \,.\, Sin^2 4x}{(p^2 Sin^2 2x + q^2 Cos^2 2x)^4} \frac{dx}{x} = \frac{\pi}{8} \frac{p^2+q^2}{p^5 q^5}$ (VIII, 391*).

29) $\int \frac{Sin^4 x \,.\, Tg\,x}{(p^2 Sin^2 x + q^2 Cos^2 x)^4} \frac{dx}{x} = \frac{\pi}{32} \frac{p^2+5q^2}{p^7 q^3} =$ 30) $16 \int \frac{Sin^5 x \,.\, Cos^3 x}{(p^2 Sin^2 2x + q^2 Cos^2 2x)^4} \frac{dx}{x}$ (VIII, 391).

31) $\int \frac{Cos^{2a} x . Cos\, 2ax . Sin\, x}{p^2 Sin^2 x + Cos^2 x} \frac{dx}{x} = \frac{\pi}{2} \frac{p^{2a-1}}{(1+p)^{2a}} =$ 32) $\int \frac{Cos^{2a-1} x . Cos\, 2ax . Sin\, x}{p^2 Sin^2 x + Cos^2 x} \frac{dx}{x}$ (VIII, 386).

33) $\int \frac{Cos^{2a} 2x . Cos\, 4ax . Tg\,x}{p^2 Sin^2 2x + Cos^2 2x} \frac{dx}{x} = \frac{\pi}{2} \frac{p^{2a-1}}{(1+p)^{2a}}$ (VIII, 386).

34) $\int \frac{Cos^a 2x \,.\, Sin\, x}{(1 + Sin\,\lambda \,.\, Cos\, 2x)^{a+1}} \frac{dx}{x} = \frac{1^{a/2}}{1^{a/1}} \frac{\pi}{2} \frac{(-1)^a}{Sin^{a+1}\lambda} \sum_0^\infty (-1)^n \frac{(n+1)^{n/1}}{(2a-1)^{n/-2}} \binom{a}{2n} \frac{1}{2^n} Tg^{2(a-n)+1}\lambda$ (VIII, 386).

35) $\int \frac{Cos^a 2x \,.\, Tg\, x}{(1 + Sin\,\lambda \,.\, Cos\, 2x)^{a+1}} \frac{dx}{x} = \frac{1^{a/2}}{1^{a/1}} \frac{\pi}{2} \frac{(-1)^a}{Sin^{a+1}\lambda} \sum_0^\infty (-1)^n \frac{(n+1)^{n/1}}{(2a-1)^{n/-2}} \binom{a}{2n} \frac{1}{2^n} Tg^{2(a-n)+1}\lambda$ (VIII, 386).

36) $\int \frac{Cos^a 4x \,.\, Tg\, x}{(1 + Sin\,\lambda \,.\, Cos\, 4x)^{a+1}} \frac{dx}{x} = \frac{1^{a/2}}{1^{a/1}} \frac{\pi}{2} \frac{(-1)^a}{Sin^{a+1}\lambda} \sum_0^\infty (-1)^n \frac{(n+1)^{n/1}}{(2a-1)^{n/-2}} \binom{a}{2n} \frac{1}{2^n} Tg^{2(a-n)+1}\lambda$ (VIII, 386).

F. Alg. rat. fract. à dén. monôme;
Circ. Dir. en dén. bin. irr. et un fact. au num. **TABLE 183.** Lim. 0 et ∞.

1) $\int \frac{Sin\, x}{\sqrt{p \pm q\, Cos\, 4x}} \frac{dx}{x} = \frac{1}{\sqrt{p+q}} F'\left(\sqrt{\frac{2q}{p+q}}\right) =$ 2) $\int \frac{Tg\, x}{\sqrt{p \pm q\, Cos\, 4x}} \frac{dx}{x}$ (VIII, 388).

3) $\int \frac{Tg\, x}{\sqrt{p \pm q\, Cos\, 8x}} \frac{dx}{x} = \frac{1}{\sqrt{p+q}} F'\left(\sqrt{\frac{2q}{p+q}}\right)$ (VIII, 389).

4) $\int \frac{Sin\, x}{\sqrt{1 + Sin^2 x}} \frac{dx}{x} = \sqrt{\frac{1}{2}} . F'\left(Sin \frac{\pi}{4}\right) =$ 5) $\int \frac{Tg\, x}{\sqrt{1 + Sin^2 x}} \frac{dx}{x}$ (VIII, 396).

6) $\int \frac{Tg\, x}{\sqrt{1 + Sin^2 2x}} \frac{dx}{x} = \sqrt{\frac{1}{2}} . F'\left(Sin \frac{\pi}{4}\right)$ (VIII, 396*).

7) $\int \frac{Sin^3 x}{\sqrt{1 + Sin^2 x}} \frac{dx}{x} = \sqrt{2} . E'\left(Sin \frac{\pi}{4}\right) - \sqrt{\frac{1}{2}} . F'\left(Sin \frac{\pi}{4}\right)$ (VIII, 396).

8) $\int \frac{Sin^3 x}{\sqrt{1 + Cos^2 x}} \frac{dx}{x} = \sqrt{2} . \left\{F'\left(Sin \frac{\pi}{4}\right) - E'\left(Sin \frac{\pi}{4}\right)\right\}$ (VIII, 396).

9) $\int \frac{Sin\, x}{\sqrt{1 + Cos^2 x}} \frac{dx}{x} = \sqrt{\frac{1}{2}} . F'\left(Sin \frac{\pi}{4}\right) =$ 10) $\int \frac{Tg\, x}{\sqrt{1 + Cos^2 x}} \frac{dx}{x}$ (VIII, 396).

11) $\int \frac{Tg\,x}{\sqrt{1+Cos^2 2x}} \frac{dx}{x} = \sqrt{\frac{1}{2}} . F'\left(Sin \frac{\pi}{4}\right)$ (VIII, 396*).

12) $\int \frac{Sin\,x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = F'(p) =$ 13) $\int \frac{Tg\,x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x}$ (VIII, 393).

14) $\int \frac{Tg\,x}{\sqrt{1-p^2 Sin^2 2x}} \frac{dx}{x} = F'(p)$ (VIII, 393).

15) $\int \frac{Sin^3 x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{1}{p^2} \{F'(p) - E'(p)\}$ (VIII, 393).

16) $\int \frac{Sin^5 x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{2+p^2}{3p^4} F'(p) - 2\frac{1+p^2}{3p^4} E'(p)$ (VIII, 394).

17) $\int \frac{Sin\,x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x} = \frac{1}{1-p^2} E'(p) =$ 18) $\int \frac{Tg\,x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x}$ (VIII, 395).

19) $\int \frac{Tg\,x}{\sqrt{1-p^2 Sin^2 2x}^3} \frac{dx}{x} = \frac{1}{1-p^2} E'(p)$ (VIII, 395*).

20) $\int \frac{Sin^3 x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x} = \frac{1}{p^2(1-p^2)} E'(p) - \frac{1}{p^2} F'(p)$ (VIII, 395).

21) $\int \frac{Sin\,x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x} = F'(p) =$ 22) $\int \frac{Tg\,x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x}$ (VIII, 394).

23) $\int \frac{Tg\,x}{\sqrt{1-p^2 Cos^2 2x}} \frac{dx}{x} = F'(p)$ (VIII, 394).

24) $\int \frac{Sin^3 x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x} = \frac{1}{p^2} \{E'(p) - (1-p^2) F'(p)\}$ (VIII, 394).

25) $\int \frac{Sin^5 x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x} = \frac{1}{3p^4} \{2(2p^2-1) E'(p) + (2+3p^2)(1-p^2) F'(p)\}$ (VIII, 395).

26) $\int \frac{Sin\,x}{\sqrt{1-p^2 Cos^2 x}^3} \frac{dx}{x} = \frac{1}{1-p^2} E'(p) =$ 27) $\int \frac{Tg\,x}{\sqrt{1-p^2 Cos^2 x}^3} \frac{dx}{x}$ (VIII, 395).

28) $\int \frac{Tg\,x}{\sqrt{1-p^2 Cos^2 2x}^3} \frac{dx}{x} = \frac{1}{1-p^2} E'(p)$ (VIII, 395*).

29) $\int \frac{Sin^3 x}{\sqrt{1-p^2 Cos^2 x}^3} \frac{dx}{x} = \frac{1}{p^2} \{F'(p) - E'(p)\}$ (VIII, 395).

1) $\int \frac{Tg\,x.Cos\,4x}{\sqrt{p+q\,Cos\,4x}}\frac{dx}{x}=\frac{1}{q}\left\{\sqrt{p+q}.E'\left(\sqrt{\frac{2q}{p+q}}\right)-\frac{p}{\sqrt{p+q}}F'\left(\sqrt{\frac{2q}{p+q}}\right)\right\}$ (VIII, 389).

2) $\int \frac{Tg\,x.Cos\,8x}{\sqrt{p+q\,Cos\,8x}}\frac{dx}{x}=\frac{1}{q}\left\{\sqrt{p+q}.E'\left(\sqrt{\frac{2q}{p+q}}\right)-\frac{p}{\sqrt{p+q}}F'\left(\sqrt{\frac{2q}{p+q}}\right)\right\}$ (VIII, 389).

3) $\int \frac{Tg\,x.Cos\,4x}{\sqrt{p-q\,Cos\,4x}}\frac{dx}{x}=\frac{1}{q}\left\{\frac{p}{\sqrt{p+q}}F'\left(\sqrt{\frac{2q}{p+q}}\right)-\sqrt{p+q}.E'\left(\sqrt{\frac{2q}{p+q}}\right)\right\}$ (VIII, 389).

4) $\int \frac{Tg\,x.Cos\,8x}{\sqrt{p-q\,Cos\,8x}}\frac{dx}{x}=\frac{1}{q}\left\{\frac{p}{\sqrt{p+q}}F'\left(\sqrt{\frac{2q}{p+q}}\right)-\sqrt{p+q}.E'\left(\sqrt{\frac{2q}{p+q}}\right)\right\}$ (VIII, 389).

5) $\int \frac{Sin^2x.Tg\,x}{\sqrt{1+Sin^2x}}\frac{dx}{x}=\sqrt{2}.E'\left(Sin\frac{\pi}{4}\right)-\sqrt{\frac{1}{2}}.F'\left(Sin\frac{\pi}{4}\right)=$ 6) $\int \frac{Tg\,x.Cos^2 2x}{\sqrt{1+Cos^2 2x}}\frac{dx}{x}$ (VIII, 396).

7) $\int \frac{Tg\,x.Cos^2 2x}{\sqrt{1+Sin^2 2x}}\frac{dx}{x}=\sqrt{2}.\left\{F'\left(Sin\frac{\pi}{4}\right)-E'\left(Sin\frac{\pi}{4}\right)\right\}=$ 8) $\int \frac{Sin^2x.Tg\,x}{\sqrt{1+Cos^2x}}\frac{dx}{x}$ (VIII, 396).

9) $\int \frac{Sin^2x.Tg\,x}{\sqrt{1-p^2Sin^2x}}\frac{dx}{x}=\frac{1}{p^2}\{F'(p)-E'(p)\}$ (VIII, 394).

10) $\int \frac{Sin^2 4x.Tg\,x}{\sqrt{1-p^2Sin^2 2x}}\frac{dx}{x}=\frac{4}{3p^4}\{(2-p^2)E'(p)-2(1-p^2)F'(p)\}$ (VIII, 394*).

11) $\int \frac{Sin^4x.Tg\,x}{\sqrt{1-p^2Sin^2x}}\frac{dx}{x}=\frac{1}{3p^4}\{(2+p^2)F'(p)-2(1+p^2)E'(p)\}$ (VIII, 394).

12) $\int \frac{Cos^2 2x.Tg\,x}{\sqrt{1-p^2Sin^2 2x}}\frac{dx}{x}=\frac{1}{p^2}\{E'(p)-(1-p^2)F'(p)\}$ (VIII, 394).

13) $\int \frac{Cos^4 2x.Tg\,x}{\sqrt{1-p^2Sin^2 2x}}\frac{dx}{x}=\frac{1}{3p^4}\{(2+3p^2)(1-p^2)F'(p)-(1-2p^2)E'(p)\}$ (VIII, 394*).

14) $\int \frac{Sin^2x.Tg\,x}{\sqrt{1-p^2Sin^2x}^3}\frac{dx}{x}=\frac{1}{p^2(1-p^2)}\{E'(p)-(1-p^2)F'(p)\}$ (VIII, 395).

15) $\int \frac{Cos^2 2x.Tg\,x}{\sqrt{1-p^2Sin^2 2x}^3}\frac{dx}{x}=\frac{1}{p^2}\{F'(p)-E'(p)\}$ (VIII, 395*).

16) $\int \frac{Sin^2x.Tg\,x}{\sqrt{1-p^2Cos^2x}}\frac{dx}{x}=\frac{1}{p^2}\{E'(p)-(1-p^2)F'(p)\}$ (VIII, 394).

17) $\int \frac{Sin^2 4x.Tg\,x}{\sqrt{1-p^2Sin^2 2x}}\frac{dx}{x}=\frac{4}{3p^4}\{(2-p^2)E'(p)-2(1-p^2)F'(p)\}$ (VIII, 395*).

18) $\displaystyle\int \frac{Sin^4 x\,.\,Tg\,x}{\sqrt{1-p^2\,Cos^2 x}}\,\frac{dx}{x} = \frac{1}{3p^4}\left\{(2+3p^2)(1-p^2)F'(p) - 2(1-2p^2)E'(p)\right\}$ (VIII, 395).

19) $\displaystyle\int \frac{Cos^2 2x\,.\,Tg\,x}{\sqrt{1-p^2\,Cos^2 2x}}\,\frac{dx}{x} = \frac{1}{p^2}\left\{F'(p) - E'(p)\right\}$ (VIII, 394*).

20) $\displaystyle\int \frac{Cos^4 2x\,.\,Tg\,x}{\sqrt{1-p^2\,Cos^2 2x}}\,\frac{dx}{x} = \frac{1}{3p^4}\left\{(2+p^2)F'(p) - 2(1+p^2)E'(p)\right\}$ (VIII, 395*).

21) $\displaystyle\int \frac{Sin^2 x\,.\,Tg\,x}{\sqrt{1-p^2\,Cos^2 x}^3}\,\frac{dx}{x} = \frac{1}{p^2}\left\{F'(p) - E'(p)\right\}$ (VIII, 395).

22) $\displaystyle\int \frac{Cos^2 2x\,.\,Tg\,x}{\sqrt{1-p^2\,Cos^2 2x}^3}\,\frac{dx}{x} = \frac{1}{p^2(1-p^2)}\left\{E'(p) - (1-p^2)F'(p)\right\}$ (VIII, 396*).

F. Alg. rat. fract. à dén. monôme;
Circ. Dir. en dén. bin. irr. et plus. fact. au num. sans $Tg\,x$. TABLE 185. Lim. 0 et ∞.

1) $\displaystyle\int \frac{Sin\,x\,.\,Cos\,4x}{\sqrt{p+q\,Cos\,4x}}\,\frac{dx}{x} = \frac{1}{q}\left\{\sqrt{p+q}\,.\,E'\left(\sqrt{\frac{2q}{p+q}}\right) - \frac{p}{\sqrt{p+q}}\,F'\left(\sqrt{\frac{2q}{p+q}}\right)\right\}$ (VIII, 389).

2) $\displaystyle\int \frac{Sin\,x\,.\,Cos\,4x}{\sqrt{p-q\,Cos\,4x}}\,\frac{dx}{x} = \frac{1}{q}\left\{\frac{p}{\sqrt{p+q}}\,F'\left(\sqrt{\frac{2q}{p+q}}\right) - \sqrt{p+q}\,.\,E'\left(\sqrt{\frac{2q}{p+q}}\right)\right\}$ (VIII, 389).

3) $\displaystyle\int \frac{Sin\,x\,.\,Cos\,x}{\sqrt{1+Sin^2 x}}\,\frac{dx}{x} = \sqrt{2}\,.\left\{F'\left(Sin\frac{\pi}{4}\right) - E'\left(Sin\frac{\pi}{4}\right)\right\} =$ 4) $\displaystyle\int \frac{Sin\,x\,.\,Cos^3 x}{\sqrt{1+Sin^2 x}}\,\frac{dx}{x}$ (VIII, 396).

5) $\displaystyle\int \frac{Sin^3 x\,.\,Cos\,x}{\sqrt{1+Sin^2 2x}}\,\frac{dx}{x} = \frac{1}{4}\left\{\sqrt{2}\,.\,E'\left(Sin\frac{\pi}{4}\right) - \sqrt{\frac{1}{2}}\,.\,F'\left(Sin\frac{\pi}{4}\right)\right\}$ (VIII, 396).

6) $\displaystyle\int \frac{Sin\,x\,.\,Cos\,x}{\sqrt{1+Cos^2 x}}\,\frac{dx}{x} = \sqrt{2}\,.\,E'\left(Sin\frac{\pi}{4}\right) - \sqrt{\frac{1}{2}}\,.\,F'\left(Sin\frac{\pi}{4}\right) =$ 7) $\displaystyle\int \frac{Sin\,x\,.\,Cos^3 x}{\sqrt{1+Cos^2 x}}\,\frac{dx}{x}$ (VIII, 396).

8) $\displaystyle\int \frac{Sin^3 x\,.\,Cos\,x}{\sqrt{1+Cos^2 2x}}\,\frac{dx}{x} = \frac{1}{2\sqrt{2}}\left\{F'\left(Sin\frac{\pi}{4}\right) - E'\left(Sin\frac{\pi}{4}\right)\right\}$ (VIII, 396).

9) $\displaystyle\int \frac{Sin\,x\,.\,Cos\,x}{\sqrt{1-p^2\,Sin^2 x}}\,\frac{dx}{x} = \frac{1}{p^2}\left\{E'(p) - (1-p^2)F'(p)\right\} =$ 10) $\displaystyle\int \frac{Sin\,x\,.\,Cos^3 x}{\sqrt{1-p^2\,Sin^2 x}}\,\frac{dx}{x}$ (VIII, 394).

11) $\displaystyle\int \frac{Sin\,x\,.\,Cos^3 x}{\sqrt{1-p^2\,Sin^2 x}}\,\frac{dx}{x} = \frac{1}{3p^4}\left\{(2+3p^2)(1-p^2)F'(p) - 2(1-2p^2)E'(p)\right\}$ (VIII, 394).

12) $\displaystyle\int \frac{Sin\,x\,.\,Cos^4 x}{\sqrt{1-p^2\,Sin^2 x}}\,\frac{dx}{x} = \frac{1}{3p^4}\left\{(2+3p^2)(1-p^2)F'(p) - 2(1-2p^2)E'(p)\right\}$ (VIII, 394).

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13) $\int \frac{Sin^3 x . Cos x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{1}{3p^4} \{(2-p^2)E'(p) - 2(1-p^2)F'(p)\} =$ 14) $\int \frac{Sin^3 x . Cos^3 x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x}$ (VIII, 394).

15) $\int \frac{Sin^3 x . Cos x}{\sqrt{1-p^2 Sin^2 2x}} \frac{dx}{x} = \frac{1}{4p^2} \{F'(p) - E'(p)\}$ (VIII, 394).

16) $\int \frac{Sin^5 x . Cos^3 x}{\sqrt{1-p^2 Sin^2 2x}} \frac{dx}{x} = \frac{1}{48p^4} \{(2+p^2)F'(p) - 2(1+p^2)E'(p)\}$ (VIII, 394).

17) $\int \frac{Sin x . Cos x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x} = \frac{1}{p^2} \{F'(p) - E'(p)\} =$ 18) $\int \frac{Sin x . Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x}$ (VIII, 395).

19) $\int \frac{Sin^3 x . Cos x}{\sqrt{1-p^2 Sin^2 2x}^3} \frac{dx}{x} = \frac{1}{4p^2(1-p^2)} \{E'(p) - (1-p^2)F'(p)\}$ (VIII, 395).

20) $\int \frac{Sin x . Cos x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x} = \frac{1}{p^2} \{F'(p) - E'(p)\} =$ 21) $\int \frac{Sin x . Cos^2 x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x}$ (VIII, 394).

22) $\int \frac{Sin x . Cos^3 x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x} = \frac{1}{3p^4} \{(2+p^2)F'(p) - 2(1+p^2)E'(p)\}$ (VIII, 395).

23) $\int \frac{Sin x . Cos^4 x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x} = \frac{1}{3p^4} \{(2+p^2)F'(p) - 2(1+p^2)E'(p)\}$ (VIII, 395).

24) $\int \frac{Sin^3 x . Cos x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x} = \frac{1}{3p^4} \{(2-p^2)E'(p) - 2(1-p^2)F'(p)\}$ (VIII, 395).

25) $\int \frac{Sin^3 x . Cos^3 x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x} = \frac{1}{3p^4} \{(2-p^2)E'(p) - 2(1-p^2)F'(p)\}$ (VIII, 395).

26) $\int \frac{Sin^3 x . Cos x}{\sqrt{1-p^2 Cos^2 2x}} \frac{dx}{x} = \frac{1}{4p^2} \{E'(p) - (1-p^2)F'(p)\}$ (VIII, 394).

27) $\int \frac{Sin^5 x . Cos^3 x}{\sqrt{1-p^2 Cos^2 2x}} \frac{dx}{x} = \frac{1}{48p^4} \{(2+3p^2)(1-p^2)F'(p) - 2(1-2p^2)E'(p)\}$ (VIII, 395).

28) $\int \frac{Sin x . Cos x}{\sqrt{1-p^2 Cos^2 x}^3} \frac{dx}{x} = \frac{1}{p^2(1-p^2)} \{E'(p) - (1-p^2)F'(p)\} =$ 29) $\int \frac{Sin x . Cos^2 x}{\sqrt{1-p^2 Cos^2 x}^3} \frac{dx}{x}$ (VIII, 396).

30) $\int \frac{Sin^3 x . Cos x}{\sqrt{1-p^2 Cos^2 x}^3} \frac{dx}{x} = \frac{1}{4p^2} \{F'(p) - E'(p)\}$ (VIII, 395).

F. Alg. rat. fract. à dén. monôme; Circ. Dir. en dén. prod. de bin. et mon. **TABLE 186.** Lim. 0 et ∞.

1) $\int \frac{Sin\, x}{p^2 + Tg^2 x} \frac{dx}{x\, Cos^2 x} = \frac{\pi}{2p} =$ 2) $\int \frac{Sin\, x}{p^2 + Tg^2 x} \frac{dx}{x\, Cos^2 x}$ (VIII, 389).

3) $\int \frac{Tg\, x}{p^2 + Tg^2 2x} \frac{dx}{x\, Cos^2 2x} = \frac{\pi}{2p}$ (VIII, 389*).

4) $\int \frac{Sin\, x}{Sin^2 x + p^2 Cos^2 x} \frac{dx}{x\, Cos\, 2x} = \frac{\pi}{2p} \frac{1-p^2}{1+p^2} =$ 5) $\int \frac{Tg\, x}{Sin^2 x + p^2 Cos^2 x} \frac{dx}{x\, Cos\, 2x}$ (VIII, 389).

6) $\int \frac{Tg\, x}{Sin^2 2x + p^2 Cos^2 2x} \frac{dx}{x\, Cos\, 4x} = \frac{\pi}{2p} \frac{1-p^2}{1+p^2}$ (VIII, 389*).

7) $\int \frac{Sin\, x . Cos\, x}{Sin^2 x + p^2 Cos^2 x} \frac{dx}{x\, Cos\, 2x} = \frac{1}{2p} \frac{\pi}{1+p^2} =$ 8) $\int \frac{Sin\, x . Cos^2 x}{Sin^2 x + p^2 Cos^2 x} \frac{dx}{x\, Cos\, 2x}$ (VIII, 389).

9) $\int \frac{Tg\, x . Cos^2 2x}{Sin^2 2x + p^2 Cos^2 2x} \frac{dx}{x\, Cos\, 4x} = \frac{1}{2p} \frac{\pi}{1+p^2}$ (VIII, 389*).

10) $\int \frac{Sin^3 x}{Sin^2 x + p^2 Cos^2 x} \frac{dx}{x\, Cos\, 2x} = -\frac{1}{2} \frac{p\pi}{1+p^2} =$ 11) $\int \frac{Sin^2 x . Tg\, x}{Sin^2 x + p^2 Cos^2 x} \frac{dx}{x\, Cos\, 2x}$ (VIII, 389).

12) $\int \frac{Sin^3 x . Cos\, x}{Sin^2 2x + p^2 Cos^2 2x} \frac{dx}{x\, Cos\, 4x} = -\frac{1}{8} \frac{p\pi}{1+p^2}$ (VIII, 389*).

F. Alg. rat. fract. à dén. monôme; $[p^2 < 1]$. Circ. Dir. en dén. trinôme et un fact. au num.; **TABLE 187.** Lim. 0 et ∞.

1) $\int \frac{Sin\, x}{1 - 2q\, Cos\, 2x + q^2} \frac{dx}{x} = \frac{\pi}{2} \frac{1}{1-q^2} [q^2 < 1], = \frac{\pi}{2} \frac{1}{q^2-1} [q^2 > 1]$ (VIII, 392).

2) $\int \frac{Tg\, x}{1 - 2q\, Cos\, 2x + q^2} \frac{dx}{x} = \frac{\pi}{2} \frac{1}{1-q^2} [q^2 < 1], = \frac{\pi}{2} \frac{1}{q^2-1} [q^2 > 1]$ (VIII, 392).

3) $\int \frac{Tg\, x}{1 - 2q\, Cos\, 4x + q^2} \frac{dx}{x} = \frac{\pi}{2} \frac{1}{1-q^2} [q^2 < 1], = \frac{\pi}{2} \frac{1}{q^2-1} [q^2 > 1]$ (VIII, 392).

4) $\int \frac{Sin\, ax}{1 - 2q\, Cos\, ax + q^2} \frac{dx}{x} = \frac{\pi}{2} \frac{1}{1-q} [q^2 < 1], = \frac{\pi}{2q} \frac{1}{q-1} [q^2 > 1]$ (VIII, 392*).

5) $\int \frac{Sin\, x}{s + q\, Sin^2 x + r\, Cos^2 x} \frac{dx}{x} = \frac{\pi}{2\sqrt{(s+q)(s+r)}} =$ 6) $\int \frac{Tg\, x}{s + q\, Sin^2 x + r\, Cos^2 x} \frac{dx}{x}$ (VIII, 390).

7) $\int \frac{Tg\, x}{s + q\, Sin^2 2x + r\, Cos^2 2x} \frac{dx}{x} = \frac{\pi}{2\sqrt{(s+q)(s+r)}}$ (VIII, 390).

8) $\int \frac{Sin^3 x}{1 - 2p\, Cos\, 2x + p^2} \frac{dx}{x} = \frac{1}{4} \frac{\pi}{1+p}$ (VIII, 392).

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F. Alg. rat. fract. à dén. monôme; $[p^2<1]$. Circ. Dir. en dén. trinôme et un fact. au num.; TABLE 187, suite. Lim. 0 et ∞.

9) $\int \frac{Sin\, x}{1-2p\, Cos\, 4x+p^2} \frac{dx}{x} = \frac{1}{2} \frac{\pi}{1-p^2} =$ 10) $\int \frac{Tg\, x}{1-2p\, Cos\, 4x+p^2} \frac{dx}{x}$ (VIII, 535).

11) $\int \frac{Tg\, x}{1-2p\, Cos\, 8x+p^2} \frac{dx}{x} = \frac{1}{2} \frac{\pi}{1-p^2}$ (VIII, 535).

12) $\int \frac{Sin^2 x}{1-2p\, Cos\, 4x+p^2} \frac{dx}{x} = \frac{\pi}{4(1-p^2)}$ (VIII, 535).

13) $\int \frac{Sin\, arx}{1-2p\, Cos\, rx+p^2} \frac{dx}{x} = \frac{\pi}{2} \frac{1-p^a}{(1-p)^2}$ (H, 29).

14) $\int \frac{Sin\, x}{(1-2p\, Cos\, 2x+p^2)^{a+1}} \frac{dx}{x} = \frac{\pi}{2(1-p^2)^{2a+1}} \sum_0^a \binom{a}{n}^2 p^{2n}$ (VIII, 387).

15) $\int \frac{Tg\, x}{(1-2p\, Cos\, 2x+p^2)^{a+1}} \frac{dx}{x} = \frac{\pi}{2(1-p^2)^{2a+1}} \sum_0^a \binom{a}{n}^2 p^{2n}$ (VIII, 387).

16) $\int \frac{Tg\, x}{(1-2p\, Cos\, 4x+p^2)^{a+1}} \frac{dx}{x} = \frac{\pi}{2(1-p^2)^{2a+1}} \sum_0^a \binom{a}{n}^2 p^{2n}$ (VIII, 387).

F. Alg. rat. fract. à dén. monôme; $[p^2<1]$. Circ. Dir. en dén. trin. et plus. fact. au num. avec $Tg\, x$.; TABLE 188. Lim. 0 et ∞.

1) $\int \frac{Sin^2 x \,.\, Tg\, x}{1-2p\, Cos\, 2x+p^2} \frac{dx}{x} = \frac{1}{4} \frac{\pi}{1+p} =$ 2) $\int \frac{Sin^2 2x \,.\, Tg\, x}{1-2p\, Cos\, 4x+p^2} \frac{dx}{x}$ (VIII, 392).

3) $\int \frac{Sin^2 x \,.\, Tg\, x}{1-2p\, Cos\, 4x+p^2} \frac{dx}{x} = \frac{\pi}{4(1-p^2)}$ (VIII, 535).

4) $\int \frac{Cos^2 2x \,.\, Tg\, x}{1-2p\, Cos\, 4x+p^2} \frac{dx}{x} = \frac{1}{4} \frac{\pi}{1-p}$ (VIII, 392*).

5) $\int \frac{Cos\, 2ax \,.\, Tg\, x}{1-2p\, Cos\, 2x+p^2} \frac{dx}{x} = \frac{\pi}{2} \frac{p^a}{1-p^2} =$ 6) $\int \frac{Cos\, 4ax \,.\, Tg\, x}{1-2p\, Cos\, 4x+p^2} \frac{dx}{x}$ (VIII, 386).

7) $\int \frac{Cos\, 8ax \,.\, Tg\, x}{1-2p\, Cos\, 8x+p^2} \frac{dx}{x} = \frac{\pi}{2} \frac{p^a}{1-p^2}$ (VIII, 534).

8) $\int \frac{Cos\{(2a+1)2x\} \,.\, Tg\, x}{1-2p\, Cos\, 4x+p^2} \frac{dx}{x} = 0 =$ 9) $\int \frac{Cos\{(2a+1)4x\} \,.\, Tg\, x}{1-2p\, Cos\, 8x+p^2} \frac{dx}{x}$ (VIII, 534).

10) $\int \frac{Sin^2 x \,.\, Tg^{2a+1} x}{1-2p\, Cos\, 2x+p^2} \frac{dx}{x} = \frac{\pi}{4} Sec\, a\pi \,.\left\{1-\left(\frac{1-p}{1+p}\right)^{2a+1}\right\} =$ 11) $\int \frac{Sin^2 x \,.\, Tg^{2a} x}{1-2p\, Cos\, 2x+p^2} \frac{dx}{x}$ (VIII, 387).

12) $\int \frac{Sin^2 x \,.\, Cos\, x \,.\, Tg^{2a} 2x}{1-2p\, Cos\, 4x+p^2} \frac{dx}{x} = \frac{\pi}{16} Sec\, a\pi \,.\left\{1-\left(\frac{1-p}{1+p}\right)^{2a+1}\right\}$ (VIII, 387).

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13) $\int \frac{Sin^2 x . Tg^{2a+1} x}{1-2p\, Cos 4x+p^2} \frac{dx}{x} = \frac{\pi}{8} \frac{Cos\{(a+1)\pi\}}{1+p} \frac{\{(1+\sqrt{p})^{2a+1}-(1-\sqrt{p})^{2a+1}\}^2}{(1-p)^{2a+1}}$ (VIII, 535).

14) $\int \frac{Sin^2 x . Tg^{2a} x}{1-2p\, Cos 4x+p^2} \frac{dx}{x} = \frac{\pi}{8} \frac{Cos\{(a+1)\pi\}}{1+p} \frac{\{(1+\sqrt{p})^{2a+1}-(1-\sqrt{p})^{2a+1}\}^2}{(1-p)^{2a+1}}$ (VIII, 535).

15) $\int \frac{Sin^2 x . Cos x . Tg^{2a} 2x}{1-2p\, Cos 8x+p^2} \frac{dx}{x} = \frac{\pi}{32} \frac{Cos\{(a+1)\pi\}}{1+p} \frac{\{(1+\sqrt{p})^{2a+1}-(1-\sqrt{p})^{2a+1}\}^2}{(1-p)^{2a+1}}$ (VIII, 535).

16) $\int \frac{Cos^a 2x . Cos 2ax . Tg x}{1-2p\, Cos 4x+p^2} \frac{dx}{x} = \frac{\pi}{2(1-p^2)} \left(\frac{1+p}{2}\right)^a$ (VIII, 387*).

17) $\int \frac{Cos^a 2x . Cos 2ax . Tg x}{1-2p\, Cos 8x+p^2} \frac{dx}{x} = \frac{\pi}{2^{a+2}} \frac{(1+\sqrt{p})^a+(1-\sqrt{p})^a}{1-p^2}$ (VIII, 535).

F. Alg. rat. fract. à dén. monôme; $[p^2<1]$. TABLE 189. Lim. 0 et ∞.
Circ. Dir. en dén. trin. et plus. fact. au num. sans *Tg x*.;

1) $\int \frac{Sin x . Cos x}{1-2p\, Cos 2x+p^2} \frac{dx}{x} = \frac{1}{4} \frac{\pi}{1-p} =$ 2) $\int \frac{Sin x . Cos^2 x}{1-2p\, Cos 2x+p^2} \frac{dx}{x}$ (VIII, 392).

3) $\int \frac{Sin x . Cos^3 x}{1-2p\, Cos 4x+p^2} \frac{dx}{x} = \frac{1}{4} \frac{\pi}{1-p^2} =$ 4) $4\int \frac{Sin^3 x . Cos x}{1-2p\, Cos 8x+p^2} \frac{dx}{x}$ (VIII, 535).

5) $\int \frac{Sin x . Cos ax}{1-2p\, Cos x+p^2} \frac{dx}{x} = \frac{\pi}{2} \frac{p^{a-1}}{1-p}$ (VIII, 639).

6) $\int \frac{Sin x . Cos 2ax}{1-2p\, Cos 2x+p^2} \frac{dx}{x} = \frac{\pi}{2} \frac{p^a}{1-p^2} =$ 7) $\int \frac{Sin x . Cos 4ax}{1-2p\, Cos 4x+p^2} \frac{dx}{x}$ (VIII, 386, 534).

8) $\int \frac{Sin x . Cos\{(2a+1)2x\}}{1-2p\, Cos 4x+p^2} \frac{dx}{x} = 0$ (VIII, 534).

9) $\int \frac{Sin ax . Cos x}{1-2p\, Cos 2x+p^2} \frac{dx}{x} = \frac{\pi}{4} \frac{-2+p^{\frac{1}{2}(a-1)}\{1+(-1)^{a-1}\}+p^{\frac{1}{2}a}\{1+(-1)^a\}}{(1-p)^2}$
(VIII, 639).

10) $\int \frac{Sin x . Cos ax}{1-2p\, Cos 2x+p^2} \frac{dx}{x} = \frac{\pi}{4} \frac{p^{\frac{1}{2}(a-1)}\{1+(-1)^{a-1}\}+p^{\frac{1}{2}a}\{1+(-1)^a\}}{(1-p)^2}$ (VIII, 639).

11) $\int \frac{Cos^{a-1} x . Cos ax . Sin x}{1-2p\, Cos 2x+p^2} \frac{dx}{x} = \frac{\pi}{2(1-p^2)} \left(\frac{1+p}{2}\right)^a =$ 12) $\int \frac{Cos^a x . Cos ax . Sin x}{1-2p\, Cos 2x+p^2} \frac{dx}{x}$
(VIII, 417).

13) $\int \frac{Cos^{a-1} x . Cos ax . Sin x}{1-2p\, Cos 4x+p^2} \frac{dx}{x} = \frac{\pi}{2^{a+2}} \frac{(1+\sqrt{p})^a+(1-\sqrt{p})^a}{1-p^2}$ (VIII, 535).

14) $\int \frac{Cos^a x . Cos\, a x . Sin\, x}{1-2p\, Cos\, 4x+p^2} \frac{dx}{x} = \frac{\pi}{2^{a+2}} \frac{(1+\sqrt{p})^a+(1-\sqrt{p})^a}{1-p^2}$ (VIII, 535).

15) $\int \frac{Cos^{2a} x . Sin\, 2ax . Sin^2 x}{1-2p\, Cos\, 2x+p^2} \frac{dx}{x} = \frac{\pi}{p} \frac{(1+p)^{2a}-1}{2^{2a+2}} =$ 16) $\int \frac{Cos^{2a+1} x . Sin\, 2ax . Sin^2 x}{1-2p\, Cos\, 2x+p^2} \frac{dx}{x}$ (VIII, 387).

17) $\int \frac{Cos^{2a+1} 2x . Sin\, 4ax . Sin^2 x}{1-2p\, Cos\, 4x+p^2} \frac{dx}{x} = \frac{\pi}{p} \frac{(1+p)^{2a}-1}{2^{2a+4}}$ (VIII, 387).

18) $\int \frac{Cos^{2a} x . Sin\, 2ax . Sin^2 x}{1-2p\, Cos\, 4x+p^2} \frac{dx}{x} = \frac{\pi}{2^{2a+4}} \frac{(1+\sqrt{p})^{2a}-(1-\sqrt{p})^{2a}}{(1+p)\sqrt{p}}$ (VIII, 535).

19) $\int \frac{Cos^{2a+1} x . Sin\, 2ax . Sin^2 x}{1-2p\, Cos\, 4x+p^2} \frac{dx}{x} = \frac{\pi}{2^{2a+4}} \frac{(1+\sqrt{p})^{2a}-(1-\sqrt{p})^{2a}}{(1+p)\sqrt{p}}$ (VIII, 535).

20) $\int \frac{Cos^{2a+1} 2x . Sin\, 4ax . Sin^2 x}{1-2p\, Cos\, 8x+p^2} \frac{dx}{x} = \frac{\pi}{2^{2a+5}} \frac{(1+\sqrt{p})^{2a}-(1-\sqrt{p})^{2}}{(1+p)\sqrt{p}}$ (VIII, 535).

21) $\int Sin^s rx \frac{Sin(\frac{1}{2}s\pi - srx)}{1-2p\, Cos\, 2rx+p^2} \frac{dx}{x} = \frac{\pi}{2^{s+1}} (1-p)^{s-2}$ (H, 147).

22) $\int Sin^{s-1} rx \frac{Sin\{(s-1)\frac{1}{2}\pi-(s+1)rx\}}{1-2p\, Cos\, 2rx+p^2} \frac{dx}{x} = \frac{-p\pi}{2^{s-1}} (1-p)^{s-3}$ (H, 169).

23) $\int Cos^s rx \frac{Sin\, srx}{1-2p\, Cos\, 2rx+p^2} \frac{dx}{x} = \frac{\pi}{2(1-p)^2} \{1-2^{-s}(1+p)^s\}$ (H, 145).

24) $\int Cos^{s-1} rx \frac{Sin\{(s+1)rx\}}{1-2p\, Cos\, 2rx+p^2} \frac{dx}{x} = \frac{\pi}{2^s(1-p)^2} \{2^{s-1}-p(1+p)^{s-1}\}$ (H, 165).

25) $\int Sin^s rx . Cos^q rx \frac{Sin\{\frac{1}{2}s\pi-(q+s)rx\}}{1-2p\, Cos\, 2rx+p^2} \frac{dx}{x} = \frac{\pi}{2^{q+s+1}} (1+p)^q (1-p)^{s-2}$ (H, 149).

26) $\int Sin^{s-1} rx . Cos^{q-1} rx \frac{Sin\{\frac{1}{2}(s-1)\pi-(q+s)rx\}}{1-2p\, Cos\, 2rx+p^2} \frac{dx}{x} = \frac{-p\pi}{2^{q+s-2}} (1+p)^{q-1} (1-p)^{s-3}$ (H, 168).

F. Alg. rat. fract. à dén. monôme; TABLE 190. Lim. 0 et ∞.
Circ. Dir. en dén. trin. Autre forme. $[p<1, q<1]$.

1) $\int \frac{1-p\, Cos\, x}{1-2p\, Cos\, x+p^2} Sin\, ax \frac{dx}{x} = \frac{\pi}{2} \frac{1-p^a}{1-p}$ (VIII, 639).

2) $\int \frac{1-q\, Cos\, rx - q^s\, Cos\, srx + q^{s+1}\, Cos\{(s-1)rx\}}{1-2q\, Cos\, rx+q^2} Sin\, x \frac{dx}{x} = \frac{\pi}{2}$ (H, 30).

3) $\int \frac{Sin\, rx - q^{s-1}\, Sin\, srx + q^s\, Sin\{(s-1)rx\}}{1-2q\, Cos\, rx + q^2}\, Sin\, x\, \frac{dx}{x^2} = \frac{\pi}{2}\, \frac{1-q^{s-1}}{1-q}$ (H, 30).

4) $\int \frac{Sin\, rx - q^{s-1}\, Sin\, srx + q^s\, Sin\{(s-1)rx\}}{1-2q\, Cos\, rx + q^2}\, Cos\, x\, \frac{dx}{x} = \frac{\pi}{2}\, \frac{1-q^{s-1}}{1-q}$ (H, 30).

5) $\int \frac{Sin\, rx - q^{s-1}\, Sin\, srx + q^s\, Sin\{(s-1)rx\}}{1-2q\, Cos\, rx + q^2}\, Sin^2 x\, \frac{dx}{x^2} = \frac{\pi}{2} \left\{ \frac{1-q^{s-1}}{1-q} - \frac{1}{4} \right\}$ (H, 30).

6) $\int \frac{1}{1-2p\, Cos\, 2x + p^2}\, \frac{Sin\, x}{1-2q\, Cos\, 2x + q^2}\, \frac{dx}{x} = \frac{\pi}{2(1-p^2)(1-q^2)}\, \frac{1+pq}{1-pq}$ (VIII, 418).

7) $\int \frac{1}{1-2p\, Cos\, 2x + p^2}\, \frac{Tg\, x}{1-2q\, Cos\, 2x + q^2}\, \frac{dx}{x} = \frac{\pi}{2(1-p^2)(1-q^2)}\, \frac{1+pq}{1-pq}$ (VIII, 418).

8) $\int \frac{Sin^2 x}{1-2p\, Cos\, 2x + p^2}\, \frac{Cos\, x}{1-2q\, Cos\, 2x + q^2}\, \frac{dx}{x} = \frac{1}{16}\, \frac{\pi}{1-pq}$ (VIII, 418).

9) $\int \frac{Sin^3 x}{1-2p\, Cos\, 2x + p^2}\, \frac{Cos^2 x}{1-2q\, Cos\, 2x + q^2}\, \frac{dx}{x} = \frac{1}{16}\, \frac{\pi}{1-pq}$ (VIII, 418).

10) $\int \frac{1}{1-2p\, Cos\, 4x + p^2}\, \frac{Sin\, x}{1-2q\, Cos\, 2x + q^2}\, \frac{dx}{x} = \frac{\pi}{2(1-p^2)(1-q^2)}\, \frac{1+pq^2}{1-pq^2}$ (VIII, 5[illegible]).

11) $\int \frac{1}{1-2p\, Cos\, 4x + p^2}\, \frac{Tg\, x}{1-2q\, Cos\, 2x + q^2}\, \frac{dx}{x} = \frac{\pi}{2(1-p^2)(1-q^2)}\, \frac{1+pq^2}{1-pq^2}$ (VIII, 535).

12) $\int \frac{Sin^3 x}{1-2p\, Cos\, 4x + p^2}\, \frac{Cos\, x}{1-2q\, Cos\, 2x + q^2}\, \frac{dx}{x} = \frac{\pi}{16(1+p)(1-pq^2)}$ (VIII, 536).

13) $\int \frac{Sin^2 x}{1-2p\, Cos\, 4x + p^2}\, \frac{Cos^2 x}{1-2q\, Cos\, 2x + q^2}\, \frac{dx}{x} = \frac{\pi}{16(1+p)(1-pq^2)}$ (VIII, 536).

14) $\int \frac{1}{1-2p\, Cos\, 4x + p^2}\, \frac{Sin\, x}{1-2q\, Cos\, 4x + q^2}\, \frac{dx}{x} = \frac{\pi}{2(1-p^2)(1-q^2)}\, \frac{1+pq}{1-pq}$ (VIII, 536).

15) $\int \frac{1}{1-2p\, Cos\, 4x + p^2}\, \frac{Tg\, x}{1-2q\, Cos\, 4x + q^2}\, \frac{dx}{x} = \frac{\pi}{2(1-p^2)(1-q^2)}\, \frac{1+pq}{1-pq}$ (VIII, 536).

16) $\int \frac{Sin^3 x}{1-2p\, Cos\, 4x + p^2}\, \frac{Cos\, x}{1-2q\, Cos\, 4x + q^2}\, \frac{dx}{x} = \frac{\pi}{16(1+p)(1+q)(1-pq)}$ (VIII, 536).

17) $\int \frac{Sin^2 x}{1-2p\, Cos\, 4x + p^2}\, \frac{Cos^2 x}{1-2q\, Cos\, 4x + q^2}\, \frac{dx}{x} = \frac{\pi}{16(1+p)(1+q)(1-pq)}$ (VIII, 536).

18) $\int \frac{Sin\, rx - q^{s-1}\, Sin\, srx + q^s\, Sin\{(s-1)rx\}}{(1-2p\, Cos\, rx + p^2)(1-2q\, Cos\, rx + q^2)}\, \frac{dx}{x} = \frac{\pi}{2q(1-p)^2} \left\{ \frac{1-q^s}{1-q} - \frac{1-p^s q^s}{1-pq} \right\}$ (H, 178).

1) $\int \frac{1}{Cos\, px} \frac{dx}{q^2+x^2} = \infty$ (VIII, 564).

2) $\int \frac{Sin\, 2srx}{Sin\, rx} \frac{dx}{q^2+x^2} = \frac{\pi}{q} \frac{1-e^{-2sqr}}{e^{qr}-e^{-qr}} =$ 3) $\frac{2}{q}\int \frac{Sin^2 srx}{Sin\, rx} \frac{x\,dx}{q^2+x^2}$ (H, 87).

4) $\int Sin^{s-1} rx \frac{Sin(\frac{1}{2}s\pi - srx)}{Cos\, rx} \frac{dx}{q^2+x^2} = \frac{\pi}{q} \frac{2^{1-s}}{e^{2qr}-e^{-2qr}} (1-e^{-2qr})^s$ (H, 148).

5) $\int Sin^{s-1} rx \frac{Cos(\frac{1}{2}s\pi - srx)}{Cos\, rx} \frac{x\,dx}{q^2+x^2} = \pi \frac{2^{1-s}}{e^{2qr}-e^{-2qr}} (1-e^{-2qr})^s$ (H, 148).

6) $\int Cos^{s-1} rx \frac{Sin\, srx}{Sin\, rx} \frac{dx}{q^2+x^2} = \frac{\pi}{q} \frac{2}{e^{2qr}-e^{-2qr}} \{1-2^{-s}(1+e^{-2qr})^s\}$ (H, 146).

7) $\int \frac{1-Cos^s rx . Cos\, srx}{Sin\, 2rx} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{e^{2qr}-e^{-2qr}} \{1-2^{-s}(1+e^{-2qr})^s\}$ (H, 146).

8) $\int Cos^{s-2} rx \frac{Sin\{(s+1)rx\}}{Sin\, rx} \frac{dx}{q^2+x^2} = \frac{\pi}{q} \frac{2^{2-s}}{e^{2qr}-e^{-2qr}} \{2^{s-1}-(1+e^{-2qr})^{s-1} e^{-2qr}\}$ (H, 165).

9) $\int Cos^{s-2} rx \frac{Cos\{(s+1)rx\}}{Sin\, rx} \frac{x\,dx}{q^2+x^2} = \pi \frac{2^{2-s}}{e^{2qr}-e^{-2qr}} \{2^{s-1}-(1+e^{-2qr})^{s-1} e^{-2qr}\}$ (H, 165).

10) $\int Cos(p\, Tg^2 x) \frac{x}{Sin\, 2x} \frac{dx}{q^2+x^2} = \frac{\pi}{e^{2q}-e^{-2q}} e^{-p\frac{e^q-e^{-q}}{e^q+e^{-q}}}$ (VIII, 421*).

11) $\int Cos(p\, Tg^2 x) \frac{x}{Tg\, 2x} \frac{dx}{q^2+x^2} = \frac{\pi}{2} \left\{ \frac{e^{2q}+e^{-2q}}{e^{2q}-e^{-2q}} e^{-p\frac{e^q-e^{-q}}{e^q+e^{-q}}} - e^{-p} \right\}$ (VIII. 421*).

12) $\int \frac{Sin\, 2srx}{Sin\, rx} \frac{dx}{4q^4+x^4} = \frac{\pi}{4q^3} \frac{(e^{qr}+e^{-qr}) Sin\, qr + (e^{qr}-e^{-qr}) Cos\, qr + e^{-(2s+1)qr}[Cos\{(2s-1)qr\} + Sin\{(2s-1)qr\}] - e^{-(2s-1)qr}[Sin\{(2s+1)qr\} + Cos\{(2s+1)qr\}]}{e^{2qr} - 2\, Cos\, 2qr + e^{-2qr}}$ (H, 89).

13) $\int \frac{Sin^2 srx}{Sin\, rx} \frac{x\,dx}{4q^4+x^4} = \frac{\pi}{4q^2} \frac{(e^{qr}+e^{-qr}) Sin\, qr - e^{-(2s-1)qr} Sin\{(2s+1)qr\} + e^{-(2s+1)qr} Sin\{(2s-1)qr\}}{e^{2qr} - 2\, Cos\, 2qr + e^{-2qr}}$ (H, 89).

14) $\int \frac{Sin\, 2srx}{Sin\, rx} \frac{x^2\,dx}{4q^4+x^4} = \frac{\pi}{2q} \frac{(e^{qr}-e^{-qr}) Cos\, qr - (e^{qr}+e^{-qr}) Sin\, qr + e^{-(2s+1)qr}[Cos\{(2s-1)qr\} - Sin\{(2s-1)qr\}] - e^{-(2s-1)qr}[Cos\{(2s+1)qr\} - Sin\{(2s+1)qr\}]}{e^{2qr} - 2\, Cos\, 2qr + e^{-2qr}}$ (H, 89).

15) $\int \frac{Sin^2 srx}{Sin rx} \frac{x^3 dx}{4q^4+x^4} = \pi \frac{(e^{qr}-e^{-qr}) Cos sqr - e^{-(2s-1)qr} Cos\{(2s+1)qr\} + e^{-(2s+1)qr} Cos\{(2s-1)qr\}}{e^{2qr} - 2 Cos 2qr + e^{-2qr}}$ (H, 89).

16) $\int \frac{x}{Sin px} \frac{dx}{q^2-x^2} = \infty =$ 17) $\int \frac{x}{Tg px} \frac{dx}{q^2-x^2}$ (VIII, 564).

18) $\int \frac{Sin 2srx}{Sin rx} \frac{dx}{q^2-x^2} = \frac{\pi}{q} \frac{Sin^2 sqr}{Sin qr}$ (H, 130). 19) $\int \frac{Sin^2 srx}{Sin rx} \frac{x dx}{q^2-x^2} = -\frac{\pi}{4} \frac{Sin 2sqr}{Sin qr}$ (H, 130).

20) $\int Sin^{s-1} rx \frac{Sin(\frac{1}{2}s\pi - srx)}{Cos rx} \frac{dx}{q^2-x^2} = \frac{\pi}{2q} \frac{Sin^{s-1} qr}{Cos qr} Cos\left(\frac{1}{2}s\pi - sqr\right)$ (H, 148).

21) $\int Sin^{s-1} rx \frac{Cos(\frac{1}{2}s\pi - srx)}{Cos rx} \frac{x dx}{q^2-x^2} = -\frac{\pi}{2} \frac{Sin^{s-1} qr}{Cos qr} Sin\left(\frac{1}{2}s\pi - sqr\right)$ (H, 148).

22) $\int Cos^{s-1} rx \frac{Sin srx}{Sin rx} \frac{dx}{q^2-x^2} = \frac{\pi}{q Sin 2qr}(1 - Cos^s qr . Cos sqr)$ (H, 146).

23) $\int \frac{1 - Cos^s rx . Cos srx}{Sin 2rx} \frac{x dx}{q^2-x^2} = -\frac{\pi}{4} Cos^{s-1} qr \frac{Sin sqr}{Sin qr}$ (H, 146).

24) $\int Cos^{s-1} rx \frac{Sin\{(s+1)rx\}}{Sin rx} \frac{dx}{q^2-x^2} = \frac{\pi}{2q} \frac{1}{Sin qr}\left\{1 - Cos^{s-1} qr\, Cos\{(s+1)qr\}\right\}$ (H, 166).

25) $\int Cos^{s-2} rx \frac{Cos\{(s+1)rx\}}{Sin rx} \frac{x dx}{q^2-x^2} = \frac{\pi}{2} Cos^{s-2} qr \frac{Sin\{(s+1)qr\}}{Sin qr}$ (H, 166).

26) $\int \frac{Sin 2srx}{Sin rx} \frac{dx}{q^4-x^4} = \frac{\pi}{2q^3}\left\{\frac{Sin^2 sqr}{Sin qr} + \frac{1-e^{-2sqr}}{e^{qr}-e^{-qr}}\right\}$ (H, 131).

27) $\int \frac{Sin^2 srx}{Sin rx} \frac{x dx}{q^4-x^4} = \frac{\pi}{8q^2}\left\{2\frac{1-e^{-2sqr}}{e^{qr}-e^{-qr}} - \frac{Sin 2sqr}{Sin qr}\right\}$ (H, 131).

28) $\int \frac{Sin 2srx}{Sin rx} \frac{x^2 dx}{q^4-x^4} = \frac{\pi}{2q}\left\{\frac{Sin^2 sqr}{Sin qr} - \frac{1-e^{-2sqr}}{e^{qr}-e^{-qr}}\right\}$ (H, 131).

29) $\int \frac{Sin^2 srx}{Sin rx} \frac{x^3 dx}{q^4-x^4} = -\frac{\pi}{8}\left\{\frac{Sin 2sqr}{Sin qr} + 2\frac{1-e^{-2sqr}}{e^{qr}-e^{-qr}}\right\}$ (H, 131).

F. Alg. rat. fract. à dén. bin. q^n+x^n; $[p^2<1]$. Circ. Dir. en dén. trin. et un fact. au num.; TABLE 192. Lim. 0 et ∞.

1) $\int \frac{1}{1-2p Cos rx + p^2} \frac{dx}{q^2+x^2} = \frac{\pi}{2q(1-p^2)} \frac{1+pe^{-qr}}{1-pe^{-qr}}$ (VIII, 494).

2) $\int \frac{Sin rx}{1-2p Cos rx + p^2} \frac{x dx}{q^2+x^2} = \frac{\pi}{2} \frac{1}{e^{qr}-p}[p^2<1], = \frac{\pi}{2} \frac{1}{pe^{qr}-1}[p^2>1]$ (VIII, 477).

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3) $\int \frac{Sin\, r x}{1-2p\, Cos\, 2rx+p^2} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2(1+p)} \frac{e^{qr}}{e^{2qr}-p} [p^2<1], = \frac{\pi}{2(1+p)} \frac{e^{qr}}{pe^{2qr}-1} [p^2>1]$ (VIII, 477).

4) $\int \frac{Cos\, r x}{1-2p\, Cos\, rx+p^2} \frac{dx}{q^2+x^2} = \frac{\pi}{2q(1-p^2)} \frac{p+e^{-qr}}{1-pe^{-qr}}$ (VIII, 494).

5) $\int \frac{Cos\, r x}{1-2p\, Cos\, 2rx+p^2} \frac{dx}{q^2+x^2} = \frac{\pi}{2q(1-p)} \frac{e^{-qr}}{1-pe^{-2qr}}$ (VIII, 536).

6) $\int \frac{Sin\, s x}{1-2p\, Cos\, rx+p^2} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2(1-p^2)} \frac{(1-p^2)e^{-qs}-p^{d+1}(e^{(s-dr-r)q}+e^{(dr+r-s)q})+p^{d+2}(e^{(s-dr)q}-e^{(dr-s)q})}{1-(e^{qr}+e^{-qr})p+p^2} \left[\begin{matrix}p\\ \text{fract.}\end{matrix}\right], = \frac{\pi}{2} \frac{e^{-qs}-p^d}{1-(e^{qr}+e^{-qr})p+p^2} \left[\begin{matrix}p\\ \text{entier}\end{matrix}\right] \left[d=\mathcal{E}\frac{s}{r}\right]$

7) $\int \frac{Cos\, s x}{1-2p\, Cos\, rx+p^2} \frac{dx}{q^2+x^2} = \frac{\pi}{2q(1-p^2)} \frac{(1-p^2)e^{-qs}+p^{d+1}(e^{(s-dr-r)q}-e^{(dr+r-s)q})-p^{d+2}(e^{(s-dr)q}-e^{(dr-s)q})}{1-(e^{qr}+e^{-qr})p+p^2} \left[d=\mathcal{E}\frac{s}{r}\right]$

Sur 6) et 7) voyez VIII, 494.

8) $\int \frac{Sin\, s r x}{1-2p\, Cos\, rx+p^2} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2} \frac{e^{-sqr}-p^s}{(1-pe^{-qr})(1-pe^{qr})}$ (H, 92).

9) $\int \frac{Cos\, s r x}{1-2p\, Cos\, rx-p^2} \frac{dx}{q^2+x^2} = \frac{\pi}{2q} \frac{1}{(1-pe^{-qr})(1-pe^{qr})} \left\{e^{-sqr}-\frac{p^{s+1}}{1-p^2}(e^{qr}-e^{-qr})\right\}$ (H, 91).

10) $\int \frac{Sin^{2a+1} x}{1-2p\, Cos\, rx+p^2} \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}\pi}{2^{2a+2}(1-p^2)} \left\{e^{-(2a+1)q}\left\{(1-e^{(2a+1)2q})(1-e^{-2q})^{2a+1} - 2\sum_0^a (-1)^n \binom{2a+1}{n} e^{2nq}\right\} + (e^q-e^{-q})^{2a+1}\frac{2p}{e^{qr}-p}\right\} [r>2a+1], =$

$= \frac{(-1)^{a-1}\pi}{2^{2a+2}(1-p^2)} \left\{e^{-(2a+1)q}\left\{(1-e^{(2a+1)2q})(1-e^{-2q})^{2a+1} - 2\sum_0^a (-1)^n \binom{2a+1}{n} e^{2nq}\right\} + (e^q-e^{-q})^{2a+1}\frac{2p}{e^{(2a+1)q}-p} - 1\right\} [r=2a+1]$ (V, 73).

11) $\int \frac{Cos^{2a} x}{1-2p\, Cos\, rx+p^2} \frac{dx}{q^2+x^2} = \frac{\pi}{2^{2a}q(1-p^2)} \left\{(e^q+e^{-q})^{2a}\frac{p}{e^{qr}-p} + \frac{1}{2}\binom{2a}{a} + \sum_1^a \binom{2a}{n+a} e^{-2nq}\right\}$ $[r \geqq 2a]$ (V, 72).

12) $\int \frac{Cos^{2a+1} x}{1-2p\, Cos\, rx+p^2} \frac{dx}{q^2+x^2} = \frac{\pi}{2^{2a+1}q(1-p^2)} \left\{(e^q+e^{-q})^{2a+1}\frac{p}{e^{qr}-p} + \sum_0^a \binom{2a+1}{n+a+1} e^{-(2n+1)q}\right\}$ $[r \geqq 2a+1]$ (V, 73).

13) $$\int \frac{1}{1-2p\,Cos\,rx+p^2}\,\frac{dx}{4q^4+x^4}=\frac{\pi}{8q^3(1-p^2)}\,\frac{1+2pe^{-qr}\,Sin\,qr-p^2e^{-2qr}}{1-2pe^{-qr}\,Cos\,qr+p^2e^{-2qr}}$$ (H, 96).

14) $$\int \frac{1}{1-2p\,Cos\,rx+p^2}\,\frac{x^2\,dx}{4q^4+x^4}=\frac{\pi}{4q(1-p^2)}\,\frac{1-2pe^{-qr}\,Sin\,qr-p^2e^{-2qr}}{1-2pe^{-qr}\,Cos\,qr+p^2e^{-2qr}}$$ (H, 96).

15) $$\int \frac{Sin\,rx}{1-2p\,Cos\,rx+p^2}\,\frac{x\,dx}{4q^4+x^4}=\frac{\pi}{4q^2}\,\frac{e^{-qr}\,Sin\,qr}{1-2pe^{-qr}\,Cos\,qr+p^2e^{-2qr}}$$ (H, 93).

16) $$\int \frac{Sin\,rx}{1-2p\,Cos\,rx+p^2}\,\frac{x^3\,dx}{4q^4+x^4}=\frac{\pi}{2}\,\frac{e^{-qr}\,Cos\,qr}{1-2pe^{-qr}\,Cos\,qr+p^2e^{-2qr}}$$ (H, 94).

17) $$\int \frac{Sin\,srx}{1-2p\,Cos\,rx+p^2}\,\frac{x\,dx}{4q^4+x^4}=\frac{\pi}{4q^2}\,\frac{p^{s+1}(1-e^{-2qr})e^{-qr}\,Sin\,qr-pe^{-(s+1)qr}\,Sin\{(s+1)qr\}+(1+p^2)e^{-(s+2)qr}\,Sin\,sqr-pe^{-(s+3)qr}\,Sin\{(s-1)qr\}}{(1-2pe^{-qr}\,Cos\,qr+p^2e^{-2qr})(p^2-2pe^{-qr}\,Cos\,qr+e^{-2qr})}$$ (H, 96).

18) $$\int \frac{Sin\,srx}{1-2p\,Cos\,rx+p^2}\,\frac{x^3\,dx}{4q^4+x^4}=\frac{\pi}{2}\,\frac{1}{1-2pe^{-qr}\,Cos\,qr+p^2e^{-2qr}}\left\{e^{-qr}\frac{1-p^{s-1}}{1-p}+\frac{(p^{s+1}e^{-qr}\,Cos\,qr-p^se^{-2qr})(1-e^{-2qr})-pe^{-(s+1)qr}\,Cos\{(s+1)qr\}+(1+p^2)e^{-(s+2)qr}\,Cos\,sqr-pe^{-(s+3)qr}\,Cos\{(s-1)qr\}}{p^2-2pe^{-qr}\,Cos\,qr+e^{-2qr}}\right\}$$ (H, 96).

19) $$\int \frac{Cos\,rx}{1-2p\,Cos\,rx+p^2}\,\frac{dx}{4q^4+x^4}=\frac{\pi}{8q^3(1-p^2)}\,\frac{p(1-e^{-2qr})+(1-p^2)e^{-qr}\,Cos\,qr+(1+p^2)e^{-qr}\,Sin\,qr}{1-2pe^{-qr}\,Cos\,qr+p^2e^{-2qr}}$$ (H, 96).

20) $$\int \frac{Cos\,rx}{1-2p\,Cos\,rx+p^2}\,\frac{x^2\,dx}{4q^4+x^4}=\frac{\pi}{4q(1-p^2)}\,\frac{p(1-e^{-2qr})+(1-p^2)e^{-qr}\,Cos\,qr-(1+p^2)e^{-qr}\,Sin\,qr}{1-2pe^{-qr}\,Cos\,qr+p^2e^{-2qr}}$$ (H, 96).

21) $$\int \frac{Cos\,srx}{1-2p\,Cos\,rx+p^2}\,\frac{dx}{4q^4+x^4}=\frac{\pi}{8q^3}\,\frac{1}{1-2pe^{-qr}\,Cos\,qr+p^2e^{-2qr}}\left\{\frac{p}{1-p^2}\,\frac{1-p^{s-1}}{1-p}(1+2pe^{-qr}\,Sin\,qr-p^2e^{-2qr})+\frac{\{p^{s+1}e^{-qr}(Cos\,qr+Sin\,qr)-p^se^{-2qr}\}(1-e^{-2qr})-pe^{-(s+1)qr}[Cos\{(s+1)qr\}+Sin\{(s+1)qr\}]+(1+p^2)e^{-(s+2)qr}\{Cos\,sqr+Sin\,sqr\}-pe^{-(s+3)qr}[Cos\{(s-1)qr\}+Sin\{(s-1)qr\}]}{p^2-2pe^{-qr}\,Cos\,qr+e^{-2qr}}\right\}$$ (H, 97).

22) $\int \frac{\operatorname{Cos} srx}{1-2p\operatorname{Cos} rx+p^2}\frac{x^2\,dx}{4q^4+x^4}=\frac{\pi}{4q}\frac{1}{1-2pe^{-qr}\operatorname{Cos} qr+p^2e^{-2qr}}\Big\{\frac{p}{1-p^2}\frac{1-p^{s-1}}{1-p}(1-2pe^{-qr}\operatorname{Sin} qr-p^2e^{-2qr})+$
$\frac{\{p^{s+1}e^{-qr}(\operatorname{Cos} qr-\operatorname{Sin} qr)-p^se^{-2qr}\}(1-e^{-2qr})-pe^{-(s+1)qr}[\operatorname{Cos}\{(s+1)qr\}-\operatorname{Sin}\{(s+1)qr\}]+(1+p^2)e^{-(s+2)qr}(\operatorname{Cos} sqr-\operatorname{Sin} sqr)-pe^{-(s+3)qr}[\operatorname{Cos}\{(s-1)qr\}-\operatorname{Sin}\{(s-1)qr\}]}{p^2-2pe^{-qr}\operatorname{Cos} qr+e^{-2qr}}\Big\}$ (H, 97).

23) $\int \frac{\operatorname{Sin} rx}{1-2p\operatorname{Cos} rx+p^2}\frac{x\,dx}{1+x^{2a}}=\frac{\pi}{2a}\frac{e^{-r}}{1-pe^{-r}}-\frac{\pi}{a}\sum_{1}^{\frac{1}{2}(a-1)}e^{-r\operatorname{Cos}\frac{n\pi}{a}}\frac{\operatorname{Cos}\frac{2n\pi}{a}.\operatorname{Cos}\left(r\operatorname{Sin}\frac{n\pi}{a}\right)-pe^{-r\operatorname{Cos}\frac{n\pi}{a}}}{1-2pe^{-r\operatorname{Cos}\frac{n\pi}{a}}\operatorname{Cos}\left(r\operatorname{Sin}\frac{n\pi}{a}\right)+p^2e^{-2r\operatorname{Cos}\frac{n\pi}{a}}}-$
$-\frac{\pi}{a}\sum_{1}^{\frac{1}{2}(a-1)}e^{-r\operatorname{Cos}\frac{n\pi}{a}}\frac{\operatorname{Sin}\frac{2n\pi}{a}.\operatorname{Sin}\left(r\operatorname{Sin}\frac{n\pi}{a}\right)}{1-2pe^{-r\operatorname{Cos}\frac{n\pi}{a}}\operatorname{Cos}\left(r\operatorname{Sin}\frac{n\pi}{a}\right)+p^2e^{-2r\operatorname{Cos}\frac{n\pi}{a}}}\left[\begin{matrix}a\\ \text{impair}\end{matrix}\right],=$
$=\frac{\pi}{a}\sum_{1}^{\frac{1}{2}a-1}\operatorname{Cos}\left(\frac{2n+1}{a}\pi\right)\frac{e^{-r\operatorname{Cos}\left(\frac{2n+1}{2a}\pi\right)}\operatorname{Cos}\left\{r\operatorname{Sin}\left(\frac{2n+1}{2a}\pi\right)\right\}-pe^{-2r\operatorname{Cos}\left(\frac{2n+1}{2a}\pi\right)}}{1-2pe^{-r\operatorname{Cos}\left(\frac{2n+1}{2a}\pi\right)}\operatorname{Cos}\left\{r\operatorname{Sin}\left(\frac{2n+1}{2a}\pi\right)\right\}+p^2e^{-2r\operatorname{Cos}\left(\frac{2n+1}{2a}\pi\right)}}+$
$+\frac{\pi}{a}\sum_{0}^{\frac{1}{2}a-1}e^{-r\operatorname{Cos}\left(\frac{2n+1}{2a}\pi\right)}\frac{\operatorname{Sin}\left\{r\operatorname{Sin}\left(\frac{2n+1}{2a}\pi\right)\right\}.\operatorname{Sin}\left(\frac{2n+1}{a}\pi\right)}{1-2pe^{-r\operatorname{Cos}\left(\frac{2n+1}{2a}\pi\right)}\operatorname{Cos}\left\{r\operatorname{Sin}\left(\frac{2n+1}{2a}\pi\right)\right\}+p^2e^{-2r\operatorname{Cos}\left(\frac{2n+1}{2a}\pi\right)}}$
$\left[\begin{matrix}a\\ \text{pair}\end{matrix}\right]$ (IV, 301).

F. Alg. rat. fract. à dén. bin. q^a-x^a; $[p^2<1]$. Circ. Dir. en dén. trin. et un fact. au num.; TABLE 193. Lim. 0 et ∞.

1) $\int \frac{1}{1-2p\operatorname{Cos} rx+p^2}\frac{dx}{q^2-x^2}=\frac{p\pi}{q(1-p^2)}\frac{\operatorname{Sin} qr}{1-2p\operatorname{Cos} qr+p^2}$ (VIII, 504).

2) $\int \frac{\operatorname{Sin} rx}{1-2p\operatorname{Cos} rx+p^2}\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\frac{p-\operatorname{Cos} qr}{1-2p\operatorname{Cos} qr+p^2}$ (VIII, 505).

3) $\int \frac{\operatorname{Sin} rx}{1-2p\operatorname{Cos} 2rx+p^2}\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\frac{p-1}{p+1}\frac{\operatorname{Cos} qr}{1-2p\operatorname{Cos} 2qr+p^2}$ (VIII, 538).

4) $\int \frac{Sin\, sx}{1-2p\, Cos\, rx + p^2} \frac{x\, dx}{q^2 - x^2} = \frac{\pi}{2(1-p^2)} \frac{-(1-p^2)\, Cos\, qr + 2p^{d+1}\, Cos\{(dr+r-s)q\} - 2p^{d+2}\, Cos\{(s-dr)q\}}{1-2p\, Cos\, qr + p^2}$ [s fract.], $= -\frac{\pi p^d}{4(1-p^2)} - \frac{\pi}{4} \frac{p^d - Cos\, qr}{1-2p\, Cos\, qr + p^2}$ [s entier];

$\left[d = \mathcal{E}\frac{s}{r}\right]$ (VIII, 504).

5) $\int \frac{Sin\, srx}{1-2p\, Cos\, rx + p^2} \frac{x\, dx}{q^2 - x^2} = \frac{\pi}{2} \frac{p^s - Cos\, sqr}{1-2p\, Cos\, qr + p^2}$ (H, 134).

6) $\int \frac{Cos\, rx}{1-2p\, Cos\, rx + p^2} \frac{dx}{q^2 - x^2} = \frac{\pi}{2q} \frac{1+p^2}{1-p^2} \frac{Sin\, qr}{1-2p\, Cos\, qr + p^2}$ (VIII, 504).

7) $\int \frac{Cos\, rx}{1-2p\, Cos\, 2rx + p^2} \frac{dx}{q^2 - x^2} = \frac{\pi}{2p} \frac{1+p}{1-p} \frac{Sin\, qr}{1-2p\, Cos\, 2qr + p^2}$ (VIII, 537).

8) $\int \frac{Cos\, sx}{1-2p\, Cos\, rx + p^2} \frac{dx}{q^2 - x^2} = \frac{\pi}{2q(1-p^2)} \frac{(1-p^2)\, Sin\, qs + 2p^{d+1}\, Sin\{(dr+r-s)q\} + 2p^{d+2}\, Sin\{(s-dr)q\}}{1-2p\, Cos\, qr + p^2}$ $\left[d = \mathcal{E}\frac{s}{r}\right]$ (VIII, 504).

9) $\int \frac{Cos\, srx}{1-2p\, Cos\, rx + p^2} \frac{dx}{q^2 - x^2} = \frac{\pi}{2q(1-p^2)} \frac{(1-p^2)\, Sin\, sqr + 2p^{s+1}\, Sin\, qr}{1-2p\, Cos\, qr + p^2}$ (H, 134).

10) $\int \frac{1}{1-2p\, Cos\, rx + p^2} \frac{dx}{q^4 - x^4} = \frac{\pi}{4q^3(1-p^2)} \left\{\frac{2p\, Sin\, qr}{1-2p\, Cos\, qr + q^2} + \frac{1+pe^{-qr}}{1-pe^{-qr}}\right\}$ (H, 135*).

11) $\int \frac{1}{1-2p\, Cos\, rx + p^2} \frac{x^2\, dx}{q^4 - x^4} = \frac{\pi}{4q(1-p^2)} \left\{\frac{2p\, Sin\, qr}{1-2p\, Cos\, qr + q^2} - \frac{1+pe^{-qr}}{1-pe^{-qr}}\right\}$ (H, 135*).

12) $\int \frac{Sin\, rx}{1-2p\, Cos\, rx + p^2} \frac{x\, dx}{q^4 - x^4} = \frac{\pi}{4q^2} \left\{\frac{p - Cos\, qr}{1-2p\, Cos\, qr + p^2} + \frac{e^{-qr}}{1-pe^{-qr}}\right\}$ (H, 135).

13) $\int \frac{Sin\, rx}{1-2p\, Cos\, rx + p^2} \frac{x^3\, dx}{q^4 - x^4} = \frac{\pi}{4} \left\{\frac{p - Cos\, qr}{1-2p\, Cos\, qr + p^2} - \frac{e^{-qr}}{1-pe^{-qr}}\right\}$ (H, 135).

14) $\int \frac{Sin\, srx}{1-2p\, Cos\, rx + p^2} \frac{x\, dx}{q^4 - x^4} = \frac{\pi}{4q^2} \left\{\frac{e^{-sqr} - p^s}{(1-pe^{-qr})(1-pe^{qr})} + \frac{p^s - Cos\, sqr}{1-2p\, Cos\, qr + p^2}\right\}$ (H, 136).

15) $\int \frac{Sin\, srx}{1-2p\, Cos\, rx + p^2} \frac{x^3\, dx}{q^4 - x^4} = \frac{\pi}{4} \left\{\frac{p^s - Cos\, sqr}{1-2p\, Cos\, qr + p^2} + \frac{p^s - e^{-sqr}}{(1-pe^{-qr})(1-pe^{qr})}\right\}$ (H, 136).

16) $\int \frac{Cos\, rx}{1-2p\, Cos\, rx + p^2} \frac{dx}{q^4 - x^4} = \frac{\pi}{4q^3(1-p^2)} \left\{\frac{(1+p^2)\, Sin\, qr}{1-2p\, Cos\, qr + p^2} + \frac{p + e^{-qr}}{1-pe^{-qr}}\right\}$ (H, 135*).

17) $\int \frac{Cos\, rx}{1-2p\, Cos\, rx + p^2} \frac{x^2\, dx}{q^4 - x^4} = \frac{\pi}{4q(1-p^2)} \left\{\frac{(1+p^2)\, Sin\, qr}{1-2p\, Cos\, qr + p^2} - \frac{p + e^{-qr}}{1-pe^{-qr}}\right\}$ (II, 135*).

F. Alg. rat. fract. à dén. bin. q^4-x^4; $[p^2<1]$. Circ. Dir. en dén. trin. et un fact. au num.; **TABLE 193, suite.** Lim. 0 et ∞.

18) $\displaystyle\int \frac{Cos\, srx}{1-2p\, Cos\, rx+p^2}\,\frac{dx}{q^4-x^4}=\frac{\pi}{4q^3(1-p^2)}\left\{\frac{(1-p^2)e^{-sqr}-p^{s+1}(e^{qr}-e^{-qr})}{(1-pe^{-qr})(1-pe^{qr})}+\right.$
$\displaystyle\left.+\frac{(1-p^2)\,Sin\, sqr+2p^{s+1}\,Sin\, qr}{1-2p\,Cos\, qr+p^2}\right\}$ (H, 136).

19) $\displaystyle\int \frac{Cos\, srx}{1-2p\, Cos\, rx+p^2}\,\frac{x^2\,dx}{q^4-x^4}=\frac{\pi}{4q(1-p^2)}\left\{\frac{(1-p^2)\,Sin\, sqr+2p^{s+1}\,Sin\, qr}{1-2p\,Cos\, qr+p^2}-\right.$
$\displaystyle\left.-\frac{(1-p^2)e^{-sqr}-p^{s+1}(e^{qr}-e^{-qr})}{(1-pe^{-qr})(1-pe^{qr})}\right\}$ (H, 136).

F. Alg. rat. fract. à dén. bin. q^2+x^2; $[p^2<1]$. Circ. Dir. en dén. trin. et deux fact. au num; **TABLE 194.** Lim. 0 et ∞.

1) $\displaystyle\int \frac{Sin\, rx\,.\,Sin\, sx}{1-2p\,Cos\, rx+p^2}\,\frac{dx}{q^2+x^2}=\frac{\pi}{4q}\,\frac{(e^{qr}-e^{-qr})e^{-qs}+p^d(e^{(s-dr-r)q}-e^{(dr+r-s)q})-p^{d+1}(e^{(s-dr)q}-e^{(dr-s)q})}{1-(e^{qr}+e^{-qr})p+p^2}$ $\left[d=\mathcal{E}\frac{r}{s}\right]$ (VIII, 495).

2) $\displaystyle\int \frac{Sin\, trx\,.\,Sin\, srx}{1-2p\,Cos\, rx+p^2}\,\frac{dx}{q^2+x^2}=\frac{\pi}{4q}\,\frac{1}{(1-pe^{-qr})(1-pe^{qr})}\left\{\frac{p^{s+1}}{1-p^2}(p^t-p^{-t})(e^{qr}-e^{-qr})-\right.$
$\left.-e^{-sqr}(e^{tqr}-e^{-tqr})\right\}$ $[t>s]$ (H, 92).

3) $\displaystyle\int \frac{Sin\, rx\,.\,Sin\, sx}{1-2p\,Cos\, 2rx+p^2}\,\frac{dx}{q^2+x^2}=\frac{\pi}{4q(1+p)}\,\frac{e^{-qs}(1+p)(e^{qr}-e^{-qr})+p^d(e^{(s-2dr-r)q}-e^{(2dr+r-s)q})-p^{d+1}(e^{(s-2dr+r)q}-e^{(2dr-r-s)q})}{1-(e^{qr}+e^{-qr})p+p^2}$ $\left[d=\mathcal{E}\frac{s}{2r}\right]$ (VIII, 537).

4) $\displaystyle\int \frac{Sin\, rx\,.\,Cos\, sx}{1-2p\,Cos\, rx+p^2}\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4}\,\frac{(e^{-qr}-e^{qr})e^{-qs}+p^d(e^{(s-dr-r)q}+e^{(dr+r-s)q})-p^{d+1}(e^{(s-dr)q}+e^{(dr-s)q})}{1-(e^{qr}+e^{-qr})p+p^2}$ [s fractionn.], $\displaystyle=\frac{(e^{-qr}-e^{qr})e^{-qs}-(1-p^2)p^{d-1}}{1-(e^{qr}+e^{-qr})p+p^2}$ [s entier];
$\left[d=\mathcal{E}\frac{s}{r}\right]$ (VIII, 495).

5) $\displaystyle\int \frac{Sin\, sx\,.\,Cos\, rx}{1-2p\,Cos\, rx+p^2}\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4(1-p^2)}\,\frac{2(1-p^2)e^{-qs}(e^{qr}+e^{-qr})-(1+p^2)p^d(e^{(s-dr-r)q}+e^{(dr+r-s)q})+(1+p^2)p^{d+1}(e^{(s-dr)q}+e^{(dr-s)q})}{1-(e^{qr}+e^{-qr})p+p^2}$ [s fractionn.], $=$
$\displaystyle=\frac{\pi}{4}\,\frac{2e^{-qs}(e^{qr}+e^{-qr})-(1+p^2)p^{d-1}}{1-(e^{qr}+e^{-qr})p+p^2}$ [s entier]; $\left[d=\mathcal{E}\frac{s}{r}\right]$ (VIII, 494).

6) $\displaystyle\int \frac{Sin\, trx\,.\,Cos\, srx}{1-2p\,Cos\, rx+p^2}\,\frac{x\,dx}{q^2+x^2}=\frac{\pi\{e^{-tqr}(e^{sqr}+e^{-sqr})-p^t(p^s+p^{-s})\}}{4(1-pe^{-qr})(1-pe^{qr})}$ $[t>s]$, $=$
$\displaystyle=\frac{\pi\{e^{-sqr}(e^{tqr}-e^{-tqr})+p^s(p^t-p^{-t})\}}{4(1-pe^{-qr})(1-pe^{qr})}$ $[t<s]$ (H, 92).

7) $$\int \frac{Sin\, rx . Cos\, sx}{1-2p\, Cos\, 2rx+p^2} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{8(1+p)} \frac{2e^{-qs}(1+p)(e^{-qr}-e^{qr})+p^{\frac{1}{2}(d-1)}(1-p^2)[1-(-1)^d]+p^{\frac{1}{2}d}[1+(-1)^d](e^{qr}+e^{-qr})(1-p)}{1-(e^{2qr}+e^{-2qr})p+p^2} \left[\begin{matrix} s \\ \text{entier} \end{matrix}\right], = \frac{\pi}{4(1+p)} \frac{e^{-qs}(1+p)(e^{-qr}-e^{qr})+ +p^d(e^{(s-2dr-r)q}-e^{(2dr+r-s)q})-p^{d+1}(e^{(s-2dr+r)q}-e^{(2dr-r-s)q})}{1- -(e^{2qr}+e^{-2qr})p+p^2}$$

$$\left[\begin{matrix} s \\ \text{fract.} \end{matrix}\right]; \left[d=\mathcal{E}\frac{s}{2r}\right] \text{ (VIII, 537).}$$

8) $$\int \frac{Sin\, sx . Cos\, rx}{1-2p\, Cos\, 2rx+p^2} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{4(1-p)} \frac{2(1-p)e^{-qs}(e^{qr}+e^{-qr})-p^d(e^{(s-2dr-r)q}+ +e^{(2dr+r-s)q})-p^{d+1}(e^{(s-2dr+r)q}+e^{(2dr-r-s)q})}{1-(e^{2qr}+e^{-2qr})p+p^2} \left[\begin{matrix} s \\ \text{fract.} \end{matrix}\right], = \frac{\pi}{8} \frac{4e^{-qs}(e^{qr}+e^{-qr})- -(1+p)p^{\frac{1}{2}(d-1)}\{1+(-1)^d\}-(e^{qr}+e^{-qr})p^{\frac{1}{2}d}\{1+(-1)^{d+1}\}}{1- -(e^{2qr}+e^{-2qr})p+p^2} \left[\begin{matrix} s \\ \text{entier} \end{matrix}\right]; \left[d=\mathcal{E}\frac{s}{2r}\right]$$

(VIII, 537).

9) $$\int \frac{Cos\, rx . Cos\, sx}{1-2p\, Cos\, rx+p^2} \frac{dx}{q^2+x^2} = \frac{\pi}{4q(1-p^2)} \frac{2(1-p^2)e^{-qs}(e^{qr}+e^{-qr})+(1+p^2)p^d(e^{(s-dr-r)q}-e^{(dr+r-s)q})-(1+p^2)p^{d+1}(e^{(s-dr)q}-e^{(dr-s)q})}{1-(e^{qr}+e^{-qr})p+p^2} \left[d=\mathcal{E}\frac{s}{r}\right] \text{ (VIII, 494).}$$

10) $$\int \frac{Cos\, trx . Cos\, srx}{1-2p\, Cos\, rx+p^2} \frac{dx}{q^2+x^2} = \frac{\pi}{4q} \frac{1}{(1-pe^{-qr})(1-pe^{qr})} \Big\{e^{-sqr}(e^{tqr}+e^{-tqr})- - \frac{p^{s+1}}{1-p^2}(p^t+p^{-t})(e^{qr}-e^{-qr})\Big\} [t>s] \text{ (H, 92).}$$

11) $$\int \frac{Cos\, rx . Cos\, sx}{1-2p\, Cos\, 2rx+p^2} \frac{dx}{q^2+x^2} = \frac{\pi}{4q(1-p)} \frac{2(1-p)e^{-qs}(e^{qr}+e^{-qr})+p^d(e^{(s-2dr-r)q}- -e^{(2dr+r-s)q})-p^{d+1}(e^{(s-2dr+r)q}-e^{(2dr-r-s)q})}{1- -(e^{2qr}+e^{-2qr})p+p^2} \left[d=\mathcal{E}\frac{s}{2r}\right] \text{ (VIII, 536).}$$

12) $$\int \frac{Sin^{2a} x . Sin\, rx}{1-2p\, Cos\, rx+p^2} \frac{dx}{q^2+x^2} = \frac{(-1)^a\pi}{2^{2a+1}} \frac{(e^q-e^{-q})^{2a}}{e^{qr}-p} [r>2a], = \frac{(-1)^a\pi}{2^{2a+1}} \left\{\frac{(e^q-e^{-q})^{2a}}{e^{2aq}-p}-1\right\}$$

$$[r=2a] \text{ (V, 73).}$$

13) $$\int \frac{Sin^{2a} x . Sin\, rx}{1-2p\, Cos\, 2rx+p^2} \frac{x\,dx}{q^2+x^2} = \frac{(-1)^a\pi}{2^{2a+1}(1+p)} (e^q-e^{-q})^{2a} \frac{e^{qr}}{e^{2qr}-p} [r>2a], =$$

$$= \frac{(-1)^a\pi}{2^{2a+1}(1+p)} \left\{(e^q-e^{-q})^{2a} \frac{e^{qr}}{e^{2qr}-p}-1\right\} [r=2a] \text{ (V, 89).}$$

14) $$\int \frac{Sin^{2a} x . Sin\, sx}{1-2p\, Cos\, rx + p^2} \frac{x\, dx}{q^2+x^2} = \frac{(-1)^a \pi}{2^{2a+1}(1-p^2)} (e^q - e^{-q})^{2a} \frac{e^{(r-s)q} - p e^{sq}}{e^{qr}-p} \; [2s > 4a < r], =$$

$$= \frac{(-1)^a \pi}{2^{2a+1}(1-p^2)} \Big\{ (e^q - e^{-q})^{2a} \frac{e^{(r-s)q} - p e^{sq}}{e^{qr}-p} - e^{(2a-s)q} \sum_0^{d-1} (-1)^n \binom{2a}{n} e^{-2nq} - e^{(s-2a)q} \sum_0^{d} (-1)^n \binom{2a}{n} e^{2nq} \Big\} \; [r > 2s < 4a, s \text{ entier}], =$$

$$= \frac{(-1)^a \pi}{2^{2a+1}(1-p^2)} \Big\{ (e^q - e^{-q})^{2a} \frac{e^{(r-s)q} - p e^{sq}}{e^{qr}-p} - e^{(2a-s)q} \sum_0^{d} (-1)^n \binom{2a}{n} e^{-2nq} - e^{(s-2a)q} \sum_0^{d} (-1)^n \binom{2a}{n} e^{2nq} \Big\} \; [r > 2s < 4a, s \text{ fract.}], =$$

$$= \frac{(-1)^a \pi}{2^{2a+1}(1-p^2)} \Big[(e^q - e^{-q})^{2a} \Big\{ e^{-qs} - p \frac{e^{qs} - e^{-qs}}{e^{(s+2a)q} - p} \Big\} + p \Big] \; [2r - 4a = 2s > r > 4a], =$$

$$= \frac{(-1)^a \pi}{2^{2a+1}(1-p^2)} \Big\{ (e^q - e^{-q})^{2a} \Big\{ e^{-qs} - p \frac{e^{qs} - e^{-qs}}{e^{(s+2a)q} - p} \Big\} + p - e^{(2a-s)q} \sum_0^{d-1} (-1)^n \binom{2a}{n} e^{-2nq} - e^{(s-2a)q} \sum_0^{d} (-1)^n \binom{2a}{n} e^{2nq} \Big\} \; [2r - 4a = 2s < r < 4a, s \text{ entier}], =$$

$$= \frac{(-1)^a \pi}{2^{2a+1}(1-p^2)} \Big\{ (e^q - e^{-q})^{2a} \Big\{ e^{-qs} - p \frac{e^{qs} - e^{-qs}}{e^{(s+2a)q} - p} \Big\} + p - e^{(2a-s)q} \sum_0^{d} (-1)^n \binom{2a}{n} e^{-2nq} - e^{(s-2a)q} \sum_0^{d} (-1)^n \binom{2a}{n} e^{2nq} \Big\} \; [2r - 4a = 2s < r < 4a, s \text{ fractionn.}];$$

$$\Big[\text{partout } d = \mathcal{E}\Big(a - \frac{1}{2}s\Big)\Big];$$

$$= \frac{(-1)^a \pi}{2^{2a+1}(1-p^2)} (e^q - e^{-q})^{2a} \Big\{ e^{(r-s)q} \Big(\frac{1}{e^{qr}-p} + p\Big) - e^{(s-r)q} \frac{p^2}{e^{qr}-p} \Big\} \; \Big[r + 2a < s > 6a < \frac{3}{2} r\Big], =$$

$$= \frac{(-1)^a \pi}{2^{2a+1}(1-p^2)} \Big\{ (e^q - e^{-q})^{2a} \Big\{ e^{(r-s)q} \Big(\frac{1}{e^{qr}-p} + p\Big) - e^{(s-r)q} \frac{p^2}{e^{qr}-p} \Big\} - p e^{(2a+r-s)q} \sum_0^{d-1} (-1)^n \binom{2a}{n} e^{-2nq} - p e^{(s-r-2a)q} \sum_0^{d} (-1)^n \binom{2a}{n} e^{2nq} \Big\} \; [r + 2a > s < 2(r-a), 2s < 3r, s-r \text{ entier}], =$$

$$= \frac{(-1)^a \pi}{2^{2a+1}(1-p^2)} \Big\{ (e^q - e^{-q})^{2a} \Big\{ e^{(r-s)q} \Big(\frac{1}{e^{qr}-p} + p\Big) - e^{(s-r)q} \frac{p^2}{e^{qr}-p} \Big\} - p e^{(2d+r-s)q} \sum_0^{d} (-1)^n \binom{2a}{n} e^{-2nq} - p e^{(s-r-2a)q} \sum_0^{d} (-1)^n \binom{2a}{n} e^{2nq} \Big\} \; [r + 2a > s < 2(r-a), 2s < 3r, s-r \text{ fractionn.}], =$$

$$= \frac{(-1)^a \pi}{2^{2a+1}(1-p^2)} \Big\{ (e^q - e^{-q})^{2a} \Big\{ p e^{(r-s)q} \frac{e^{qr} - 2p}{e^{qr}-p} + \frac{e^{(s-r)q}}{e^{qr}-p} \Big\} + p^2 \Big\} \; [s = 2(r-a) > 6a], =$$

$$= \frac{(-1)^a \pi}{2^{2a+1}(1-p^2)} \Big\{ (e^q - e^{-q})^{2a} \Big\{ p e^{(r-s)q} \frac{e^{qr} - 2p}{e^{qr}-p} + \frac{e^{(s-r)q}}{e^{qr}-p} \Big\} + p^2 - p e^{(2a+r-s)q} \sum_0^{d-1} (-1)^n \binom{2a}{n} e^{-2nq} - p e^{(s-r-2a)q} \sum_0^{d} (-1)^n \binom{2a}{n} e^{2nq} \Big\} \; [s = 2(r-a) < 6a, s-r \text{ entier}], =$$

$$= \frac{(-1)^a \pi}{2^{2a+1}(1-p^2)} \Big\{ (e^q - e^{-q})^{2a} \Big\{ p e^{(r-s)q} \frac{e^{qr} - 2p}{e^{qr}-p} + \frac{e^{(s-r)q}}{e^{qr}-p} \Big\} + p^2 - p e^{(2a+r-s)q}$$

$$\sum_0^d (-1)^n \binom{2a}{n} e^{-2nq} - p e^{(s-r-2a)q} \sum_0^d (-1)^n \binom{2a}{n} e^{2nq} \Big\} [s=2(r-a)<6a, s-r \text{ fractionn.}];$$

$$\Big[\text{partout } d = \mathcal{E}\frac{1}{2}(2a-r-s)\Big]; = \frac{(-1)^a \pi}{2^{2a+1}(1-p^2)} (e^q-e^{-q})^{2a} \frac{e^{(r-s)q}-pe^{sq}}{e^{qr}-p} \Big[r-2a>s>$$

$$>2a<\frac{1}{2}r\Big], = \frac{(-1)^a \pi}{2^{2a+1}(1-p^2)} \Big\{(e^q-e^{-q})^{2a} \frac{e^{(r-s)q}-pe^{sq}}{e^{qr}-p} + p e^{(2a+s-r)q} \sum_0^{d-1} (-1)^n$$

$$\binom{2a}{n} e^{-2nq} + p e^{(r-s-2a)q} \sum_0^d (-1)^n \binom{2a}{n} e^{2nq}\Big\} [r-2a<s>2a, 2s>r, s-r \text{ entier}], =$$

$$= \frac{(-1)^a \pi}{2^{2a+1}(1-p^2)} \Big\{(e^q-e^{-q})^{2a} \frac{e^{(r-s)q}-pe^{sq}}{e^{qr}-p} + p e^{(2a+s-r)q} \sum_0^d (-1)^n \binom{2a}{n} e^{-2nq} +$$

$$+ p e^{(r-s-2a)q} \sum_0^d (-1)^n \binom{2a}{n} e^{2nq}\Big\} [r-2a<s>2a, 2s>r, s-r \text{ fractionn.}], = \frac{(-1)^a \pi}{2^{2a+1}(1-p^2)}$$

$$\Big\{(e^q-e^{-q})^{2a} \Big\{e^{(s-r)q}\Big(\frac{1}{e^{qr}-p}-p\Big) - e^{(r-s)q}\frac{p^2}{e^{qr}-p}\Big\} - 1\Big\} \Big[s=2a<\frac{1}{2}r\Big], = \frac{(-1)^a \pi}{2^{2a+1}(1-p^2)}$$

$$\Big\{(e^q-e^{-q})^{2a} \Big\{e^{(s-r)q}\Big(\frac{1}{e^{qr}-p}-p\Big) - e^{(r-s)q}\frac{p^2}{e^{qr}-p}\Big\} - 1 + p e^{(2a+s-r)q} \sum_0^{d-1} (-1)^n \binom{2a}{n}$$

$$e^{-2nq} + p e^{(r-s-2a)q} \sum_0^d (-1)^n \binom{2a}{n} e^{2nq}\Big\} \Big[s=2a>\frac{1}{2}s, s-r \text{ entier}\Big], = \frac{(-1)^a \pi}{2^{2a+1}(1-p^2)}$$

$$\Big\{(e^q-e^{-q})^{2a} \Big\{e^{(s-r)q}\Big(\frac{1}{e^{qr}-p}-p\Big) - e^{(r-s)q}\frac{p^2}{e^{qr}-p}\Big\} - 1 + p e^{(2a+s-r)q} \sum_0^d (-1)^n \binom{2a}{n}$$

$$e^{-2nq} + p e^{(r-s-2a)q} \sum_0^d (-1)^n \binom{2a}{n} e^{2nq}\Big\} \Big[s=2a>\frac{1}{2}s, s-r \text{ fractionn.}\Big];$$

$$\Big[\text{partout } d = \mathcal{E}\frac{1}{2}(2a+s-r)\Big] \text{ (V, 74, 75, 82, 83).}$$

15) $$\int \frac{\mathrm{Sin}^{2a+1} x . \mathrm{Cos}\, rx}{1-2p\,\mathrm{Cos}\, rx+p^2} \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+2}} \frac{\pi}{1-p^2} \Big\{p e^{-(2a+1)q} \Big\{(1-e^{2a+1)2q})(1-e^{-2q})^{2a+1} -$$

$$-2\sum_0^a (-1)^n \binom{2a+1}{n} e^{2nq}\Big\} + (e^q-e^{-q})^{2a+1} \frac{1+p^2}{e^{qr}-p}\Big\} [r>2a+1], =$$

$$= \frac{(-1)^{a-1}}{2^{2a+2}} \frac{\pi}{1-p^2} \Big\{(1+p^2)\Big\{\frac{(e^q-e^{-q})^{2a+1}}{e^{(2a+1)q}-p} - 1\Big\} + p e^{-(2a+1)q} \Big\{(1-e^{(2a+1)2q})$$

$$(1-e^{-2q})^{2a+1} - 2\sum_0^a (-1)^n \binom{2a+1}{n} e^{2nq}\Big\}\Big\} [r=2a+1] \text{ (V, 73).}$$

16) $$\int \frac{\mathrm{Sin}^{2a+1} x . \mathrm{Cos}\, rx}{1-2p\,\mathrm{Cos}\, 2rx+p^2} \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+2}} \frac{\pi}{1-p} (e^q-e^{-q})^{2a+1} \frac{e^{qr}}{e^{2qr}-p} [r>2a+1], =$$

$$= \frac{(-1)^{a-1}}{2^{2a+2}} \frac{\pi}{1-p} \Big\{(e^q-e^{-q})^{2a+1} \frac{e^{qr}}{e^{2qr}-p} - 1\Big\} [r=2a+1] \text{ (V, 89).}$$

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17) $\int \frac{Sin^{2a+1}x . Cos sx}{1-2pCos rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}}{2^{2a+2}}\frac{\pi}{1-p^2}(e^q-e^{-q})^{2a+1}\frac{e^{(r-s)q}+pe^{sq}}{e^{qr}-p}$ $[2s>4a+2<r]$, $=$

$=\frac{(-1)^{a-1}}{2^{2a+2}}\frac{\pi}{1-p^2}\Big\{(e^q-e^{-q})^{2a+1}\frac{e^{(r-s)q}+pe^{sq}}{e^{qr}-p}-e^{(2a+1-s)q}\sum_0^{d-1}(-1)^n\binom{2a+1}{n}e^{-2nq}-$

$-e^{(s-2a-1)q}\sum_0^{d}(-1)^n\binom{2a+1}{n}e^{2nq}\Big\}$ $[r>2s<4a+2$, s entier$]$, $=\frac{(-1)^{a-1}}{2^{2a+2}}\frac{\pi}{1-p^2}$

$\Big\{(e^q-e^{-q})^{2a+1}\frac{e^{(r-s)q}+pe^{sq}}{e^{qr}-p}-e^{(2a+1-s)q}\sum_0^{d}(-1)^n\binom{2a+1}{n}e^{-2nq}-e^{(s-2a-1)q}\sum_0^{d}(-1)^n$

$\binom{2a+1}{n}e^{2nq}\Big\}$ $[r>2s<4a+2$, s fractionn.$]$, $=\frac{(-1)^{a-1}}{2^{2a+2}}\frac{\pi}{1-p^2}\Big\{(e^q-e^{-q})^{2a+1}\Big(e^{-qs}+$

$+(e^{qs}+e^{-qs})\frac{p}{e^{(s+2a+1)q}-p}\Big)-p\Big\}$ $[4a+2>r<2s=2r-4a-2]$, $=\frac{(-1)^{a-1}}{2^{2a+2}}\frac{\pi}{1-p^2}$

$\Big\{(e^q-e^{-q})^{2a+1}\Big(e^{-qs}+(e^{qs}+e^{-qs})\frac{p}{e^{(s+2a+1)q}-p}\Big)-p-e^{(2a+1-s)q}\sum_0^{d-1}(-1)^n\binom{2a+1}{n}$

$e^{-2nq}-e^{(s-2a-1)q}\sum_0^{d}(-1)^n\binom{2a+1}{n}e^{2nq}\Big\}$ $[2r-4a-2=2s<r<4a+2$, s entier$]$, $=$

$=\frac{(-1)^{a-1}}{2^{2a+2}}\frac{\pi}{1-p^2}\Big\{(e^q-e^{-q})^{2a+1}\Big(e^{-qs}+(e^{qs}+e^{-qs})\frac{p}{e^{(s+2a+1)q}-p}\Big)-p-e^{(2a+1-s)q}$

$\sum_0^{d}(-1)^n\binom{2a+1}{n}e^{-2nq}-e^{(s-2a-1)q}\sum_0^{d}(-1)^n\binom{2a+1}{n}e^{2nq}\Big\}$ $[2r-4a-2=2s<r<$

$<4a+2$, s fractionn.$]$; $\Big[$partout $d=\mathcal{E}\frac{1}{2}(2a+1-s)\Big]$; $=\frac{(-1)^{a-1}}{2^{2a+2}}\frac{\pi}{1-p^2}(e^q-e^{-q})^{2a+1}$

$\Big\{e^{(r-s)q}\Big(\frac{1}{e^{qr}-p}+p\Big)+e^{(s-r)q}\frac{p^2}{e^{qr}-p}\Big\}$ $\Big[r+2a+1<s>6a+3<\frac{3}{2}r\Big]$, $=\frac{(-1)^{a-1}}{2^{2a+2}}$

$\frac{\pi}{1-p^2}\Big\{(e^q-e^{-q})^{2a+1}\Big\{e^{(r-s)q}\Big(\frac{1}{e^{qr}-p}+p\Big)+e^{(s-r)q}\frac{p^2}{e^{qr}-p}\Big\}-pe^{(2a+1+r-s)q}\sum_0^{d-1}(-1)^n$

$\binom{2a+1}{n}e^{-2nq}-pe^{(s-r-2a-1)q}\sum_0^{d}(-1)^n\binom{2a+1}{n}e^{2nq}\Big\}$ $[r+2a+1>s<2r-2a-1$,

$2s>3r$, $s-r$ entier$]$, $=\frac{(-1)^{a-1}}{2^{2a+2}}\frac{\pi}{1-p^2}\Big\{(e^q-e^{-q})^{2a+1}\Big\{e^{(r-s)q}\Big(\frac{1}{e^{qr}-p}+p\Big)+$

$+e^{(s-r)q}\frac{p^2}{e^{qr}-p}\Big\}-pe^{(2a+1+r-s)q}\sum_0^{d}(-1)^n\binom{2a+1}{n}e^{-2nq}-pe^{(s-r-2a-1)q}\sum_0^{d}(-1)^n$

$\binom{2a+1}{n}e^{2nq}\Big\}$ $[r+2a+1>s<2r-2a-1, 2s>3r, s-r$ fractionn.$]$, $=\frac{(-1)^{a-1}}{2^{2a+2}}\frac{\pi}{1-p^2}$

$\Big\{(e^q-e^{-q})^{2a+1}\Big(pe^{(r-s)q}+\frac{p^2e^{(s-r)q}+e^{(r-s)q}}{e^{qr}-p}\Big)-p^2\Big\}$ $[s=2r-2a-1<6a+3]$, $=$

$$=\frac{(-1)^{a-1}}{2^{2a+2}}\frac{\pi}{1-p^2}\left\{(e^q-e^{-q})^{2a+1}\left(pe^{(r-s)q}+\frac{p^2e^{(s-r)q}+e^{(r-s)q}}{e^{qr}-p}\right)-p^2-pe^{(2a+1+r-s)q}\right.$$

$$\left.\sum_0^{d-1}(-1)^n\binom{2a+1}{n}e^{-2nq}-pe^{(s-r-2a-1)q}\sum_0^d(-1)^n\binom{2a+1}{n}e^{2nq}\right\}[s=2r-2a-$$

$$-1<6a+3, s-r\text{ ent.}],=\frac{(-1)^{a-1}}{2^{2a+2}}\frac{\pi}{1-p^2}\left\{(e^q-e^{-q})^{2a+1}\left(pe^{(r-s)q}+\frac{p^2e^{(s-r)q}+e^{(r-s)q}}{e^{qr}-p}\right)-\right.$$

$$\left.-p^2-pe^{(2a+1+r-s)q}\sum_0^d(-1)^n\binom{2a+1}{n}e^{-2nq}-pe^{(s-r-2a-1)q}\sum_0^d(-1)^n\binom{2a+1}{n}e^{2nq}\right\}$$

$[s=2r-2a-1<6a+3, s-r\text{ fract.}]$; $\left[\text{partout } d=\mathcal{E}\frac{1}{2}(2a+1+r-s)\right]$; $=\frac{(-1)^{a-1}}{2^{2a+2}}$

$$\frac{\pi}{1-p^2}(e^q-e^{-q})^{2a+1}\frac{pe^{qs}+e^{(r-s)q}}{e^{qr}-p}\left[r-2a-1>s>2a+1<\frac{1}{2}r\right],=\frac{(-1)^{a-1}}{2^{2a+2}}\frac{\pi}{1-p^2}$$

$$\left\{(e^q-e^{-q})^{2a+1}\frac{pe^{qs}+e^{(r-s)q}}{e^{qr}-p}-pe^{(2a+1+s-r)q}\sum_0^{d-1}(-1)^n\binom{2a+1}{n}e^{-2nq}-pe^{(r-s-2a-1)q}\right.$$

$$\left.\sum_0^d(-1)^n\binom{2a+1}{n}e^{2nq}\right\}[r-2a-1<s>2a+1, 2s>r, s-r\text{ entier}],=\frac{(-1)^{a-1}}{2^{2a+2}}\frac{\pi}{1-p^2}$$

$$\left\{(e^q-e^{-q})^{2a+1}\frac{pe^{qs}+e^{(r-s)q}}{e^{qr}-p}-pe^{(2a+1+s-r)q}\sum_0^d(-1)^n\binom{2a+1}{n}e^{-2nq}-pe^{(r-s-2a-1)q}\right.$$

$$\left.\sum_0^d(-1)^n\binom{2a+1}{n}e^{2nq}\right\}[r-2a-1<s>2a+1, 2s>r, s-r\text{ fractionn.}],=\frac{(-1)^{a-1}}{2^{2a+2}}$$

$$\frac{\pi}{1-p^2}\left\{(e^q-e^{-q})^{2a+1}\frac{e^{(r-s)q}+pe^{sq}}{e^{qr}-p}-1\right\}\left[s=2a+1<\frac{1}{2}r\right],=\frac{(-1)^{a-1}}{2^{2a+2}}\frac{\pi}{1-p^2}$$

$$\left\{(e^q-e^{-q})^{2a+1}\frac{e^{(r-s)q}+pe^{sq}}{e^{qr}-p}-1-pe^{(2a+1+s-r)q}\sum_0^{d-1}(-1)^n\binom{2a+1}{n}e^{-2nq}-pe^{(r-s-2a-1)q}\right.$$

$$\left.\sum_0^d(-1)^n\binom{2a+1}{n}e^{2nq}\right\}\left[s=2a+1>\frac{1}{2}r, s-r\text{ entier}\right],=\frac{(-1)^{a-1}}{2^{2a+2}}\frac{\pi}{1-p^2}\left\{(e^q-e^{-q})^{2a+1}\right.$$

$$\frac{e^{(r-s)q}+pe^{sq}}{e^{qr}-p}-1-pe^{(2a+1+s-r)q}\sum_0^d(-1)^n\binom{2a+1}{n}e^{-2nq}-pe^{(r-s-2a-1)q}\sum_0^d(-1)^n$$

$$\left.\binom{2a+1}{n}e^{2nq}\right\}\left[s=2a+1>\frac{1}{2}r, s-r\text{ fract.}\right];\left[\text{partout } d=\mathcal{E}\frac{1}{2}(2a+1-r+s)\right]$$

(V, 77, 78, 86, 87).

18) $$\int\frac{Cos^{2a}x.Cos\,rx}{1-2p\,Cos\,rx+p^2}\frac{dx}{q^2+x^2}=\frac{\pi}{2^{2a+1}q(1-p^2)}\left[(e^q+e^{-q})^{2a}\frac{1+p^2}{e^{qr}-p}+p\left\{\binom{2a}{a}+\right.\right.$$

$$\left.\left.+2\sum_1^a\binom{2a}{n+a}e^{-2nq}\right\}\right][r\geq 2a]\ (V, 72^*).$$

19) $$\int \frac{\operatorname{Cos}^{2a+1} x \,.\, \operatorname{Cos} r x}{1-2p \operatorname{Cos} r x+p^2} \frac{dx}{q^2+x^2}=\frac{\pi}{2^{2a+2} q(1-p^2)}\left\{2p \sum_0^a \binom{2a+1}{n+a+1} e^{-(2n+1)q}+\right.$$

$$\left.+(e^q+e^{-q})^{2a+1} \frac{1+p^2}{e^{qr}-p}\right\} [r \geqq 2a+1] \text{ (V, 73).}$$

20) $$\int \frac{\operatorname{Cos}^a x \,.\, \operatorname{Cos} r x}{1-2p \operatorname{Cos} 2 r x+p^2} \frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+1} q(1-p)}(e^q+e^{-q})^a \frac{e^{qr}}{e^{2qr}-p} [r \geqq a] \text{ (V, 88).}$$

21) $$\int \frac{\operatorname{Cos}^a x \,.\, \operatorname{Cos} s x}{1-2p \operatorname{Cos} r x+p^2} \frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+1} q(1-p^2)}(e^q+e^{-q})^a \frac{e^{(r-s)q}+p e^{sq}}{e^{qr}-p} [2s \geqq 2a \leqq r],=$$

$$=\frac{\pi}{2^{a+1} q(1-p^2)}\left\{(e^q+e^{-q})^a \frac{e^{(r-s)q}+p e^{sq}}{e^{qr}-p}-e^{(a-s)q} \sum_0^d \binom{a}{n} e^{-2nq}+e^{(s-a)q} \sum_0^d \binom{a}{n} e^{2nq}\right\}$$

$$\left[2a>2s \leqq r,\ d=\mathcal{E}\,\frac{1}{2}(a-s)\right],=\frac{\pi}{2^{a+1} q(1-p^2)}(e^q+e^{-q})^a\left\{e^{(r-s)q}\left(\frac{1}{e^{qr}-p}+p\right)+\right.$$

$$\left.+e^{(s-r)q} \frac{p^2}{e^{qr}-p}\right\} [r+a \leqq s \leqq 2r-a \geqq 3a],=\frac{\pi}{2^{a+1} q(1-p^2)}\left[(e^q+e^{-q})^a\left\{e^{(r-s)q}\right.\right.$$

$$\left.\left.\left(\frac{1}{e^{qr}-p}+p\right)+e^{(s-r)q} \frac{p^2}{e^{qr}-p}\right\}-e^{(a+r-s)q} \sum_0^d \binom{a}{n} e^{-2nq}+e^{(s-r-a)q} \sum_0^d \binom{a}{n} e^{2nq}\right]$$

$$\left[r+a>s \leqq 2r-a,\ 2s \leqq 3r,\ d=\mathcal{E}\,\frac{1}{2}(a+r-s)\right],=\frac{\pi}{2^{a+1} q(1-p^2)}(e^q+e^{-q})^a$$

$$\frac{p e^{sq}+e^{(r-s)q}}{e^{qr}-p}\left[r-a \geqq s \geqq a \leqq \frac{1}{2} r\right],=\frac{\pi}{2^{a+1} q(1-p^2)}\left\{(e^q+e^{-q})^a \frac{p e^{sq}+e^{(r-s)q}}{e^{qr}-p}-\right.$$

$$\left.-e^{(a+s-r)q} \sum_0^d \binom{a}{n} e^{-2nq}-e^{(r-s-a)q} \sum_0^d \binom{a}{n} e^{2nq}\right\}\left[r-a<s \geqq a,\ 2s \geqq 3r,\right.$$

$$\left.d=\mathcal{E}\,\frac{1}{2}(a+s-r)\right] \text{ (V, 74, 80).}$$

22) $$\int \operatorname{Sin}^s r x \frac{\operatorname{Sin}\left(\frac{1}{2} s \pi-s r x\right)}{1-2p \operatorname{Cos} 2 r x+p^2} \frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+1}} \frac{(1-p)^s-(1-e^{-2qr})^s}{(1-p e^{-2qr})(1-p e^{2qr})} \text{ (H, 148).}$$

23) $$\int \operatorname{Sin}^s r x \frac{\operatorname{Cos}\left(\frac{1}{2} s \pi-s r x\right)}{1-2p \operatorname{Cos} 2 r x+p^2} \frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+1} q} \frac{2}{(1-p e^{-2qr})(1-p e^{2qr})}\left\{(1-e^{-2qr})^s-\right.$$

$$\left.-\frac{p}{1+p}(e^{2qr}-e^{-2qr})(1-p)^{s-1}\right\} \text{ (H, 148).}$$

24) $$\int \operatorname{Sin}^{s-1} r x \frac{\operatorname{Sin}\left\{(s-1) \frac{1}{2} \pi-(s+1) r x\right\}}{1-2p \operatorname{Cos} 2 r x+p^2} \frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^s} \frac{(1-e^{-2qr})^{s-1} e^{-2qr}-p(1-p)^{s-1}}{(1-p e^{-2qr})(1-p e^{2qr})}$$

(H, 169).

F. Alg. rat. fract. à dén. bin. q^2+x^2; $[p^2<1]$. Circ. Dir. en dén. trin. et deux fact. au num.; **TABLE 194, suite.** Lim. 0 et ∞.

25) $$\int Sin^{s-1} rx \frac{Cos\left\{(s-1)\frac{1}{2}\pi-(s+1)rx\right\}}{1-2p\,Cos 2rx+p^2}\frac{dx}{q^2+x^2}=\frac{\pi}{2^s q}\frac{e^{-2qr}}{(1-pe^{-2qr})(1-pe^{2qr})}$$
$$\left\{(1-e^{-2qr})^{s-1}+\frac{p^2}{1+p}(1-p)^{s-1}(1-e^{4qr})\right\} \text{ (H, 169).}$$

26) $$\int\frac{Cos^s rx.\,Sin\,srx}{1-2p\,Cos 2rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+1}}\frac{(1+e^{-2qr})^s-(1+p)^s}{(1-pe^{-2qr})(1-pe^{2qr})} \text{ (H, 146).}$$

27) $$\int\frac{Cos^s rx.\,Cos\,srx}{1-2p\,Cos 2rx+p^2}\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+1}q}\frac{1}{(1-pe^{-2qr})(1-pe^{2qr})}\left\{(1+e^{-2qr})^s-\frac{p}{1-p}\right.$$
$$\left.(e^{2qr}-e^{-2qr})(1+p)^{s-1}\right\} \text{ (H, 146).}$$

28) $$\int\frac{Cos^{s-1} rx.\,Sin\left\{(s+1)rx\right\}}{1-2p\,Cos 2rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^s}\frac{(1+e^{-2qr})^{s-1}e^{-2qr}-p(1+p)^{s-1}}{(1-pe^{-2qr})(1-pe^{2qr})} \text{ (H, 165).}$$

29) $$\int\frac{Cos^{s-1} rx.\,Cos\left\{(s+1)rx\right\}}{1-2p\,Cos 2rx+p^2}\frac{dx}{q^2+x^2}=\frac{\pi}{2^s q}\frac{1}{(1-pe^{-2qr})(1-pe^{2qr})}\left\{(1+e^{-2qr})^{s-1}e^{-2qr}-\right.$$
$$\left.-\frac{2p^2}{1-p}(e^{2qr}-e^{-2qr})(1+p)^{s-2}\right\} \text{ (H, 165).}$$

F. Alg. rat. fract. à dén. bin. q^2+x^2; $[p^2<1]$. Circ. Dir. en dén. trin. et plus. fact. au num.; **TABLE 195.** Lim. 0 et ∞.

1) $$\int\frac{Sin^{2a+1}x.\,Sin\,rx.\,Sin\,sx}{1-2p\,Cos\,rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+3}}(e^q-e^{-q})^{2a+1}\frac{e^{qs}-e^{-qs}}{e^{qr}-p}\,[s<r-2a-1],=$$
$$=\frac{(-1)^{a-1}\pi}{2^{2a+3}}\left\{(e^q-e^{-q})^{2a+1}\frac{e^{qs}-e^{-qs}}{e^{(s+2a+1)q}-p}-1\right\}[s=r-2a-1] \text{ (V, 79).}$$

2) $$\int\frac{Sin^{2a+1}x.\,Sin\,rx.\,Sin\,sx}{1-2p\,Cos 2rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}}{2^{2a+3}}\frac{\pi}{1+p}(e^q-e^{-q})^{2a+1}(e^{qs}-e^{-qs})\frac{e^{qr}}{e^{2qr}-p}$$
$$[s<r-2a-1],=\frac{(-1)^{a-1}}{2^{2a+3}}\frac{\pi}{1+p}\left\{(e^q-e^{-q})^{2a+1}(e^{qs}-e^{-qs})\frac{e^{qr}}{e^{2qr}-p}-1\right\}$$
$$[s=r-2a-1] \text{ (V, 90).}$$

3) $$\int\frac{Sin^{2a}x.\,Sin\,rx.\,Cos\,sx}{1-2p\,Cos\,rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+2}}(e^q-e^{-q})^{2a}\frac{e^{qs}+e^{-qs}}{e^{qr}-p}[s<r-2a],=\frac{(-1)^a\pi}{2^{2a+2}}$$
$$\left\{(e^q-e^{-q})^{2a}\frac{e^{qs}+e^{-qs}}{e^{(s+2a)q}-p}-1\right\}[s=r-2a] \text{ (V, 76, 77).}$$

4) $$\int\frac{Sin^{2a}x.\,Sin\,sx.\,Cos\,rx}{1-2p\,Cos\,rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a}{2^{2a+2}}\frac{\pi}{1-p^2}(e^q-e^{-q})^{2a}\left\{2pe^{-qs}-(e^{qs}-e^{-qs})\right.$$
$$\left.\frac{1+p^2}{e^{qr}-p}\right\}[2s>4a<r],=\frac{(-1)^a}{2^{2a+2}}\frac{\pi}{1-p^2}\left[(e^q-e^{-q})^{2a}(e^{-qs}-e^{qs})\frac{1+p^2}{e^{qr}-p}+2p\left\{(e^q-e^{-q})^{2a}\right.\right.$$

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$$e^{-qs}-e^{(2a-s)q}\sum_0^{d-1}(-1)^n\binom{2a}{n}e^{-2nq}-e^{(s-2a)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{2nq}\Big\}\Big]\ [r>2s<4a,\ s\ \text{ent.}],=$$

$$=\frac{(-1)^a}{2^{2a+2}}\frac{\pi}{1-p^2}\Big[(e^q-e^{-q})^{2a}(e^{-qs}-e^{qs})\frac{1+p^2}{e^{qr}-p}+2p\Big\{(e^q-e^{-q})^{2a}e^{-qs}-e^{(2a-s)q}$$

$$\sum_0^{d}(-1)^n\binom{2a}{n}e^{-2nq}-e^{(s-2a)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{2nq}\Big\}\Big]\ [r>2s<4a,\ s\ \text{fractionn.}],=$$

$$=\frac{(-1)^a}{2^{2a+2}}\frac{\pi}{1-p^2}\Big\{(e^q-e^{-q})^{2a}\Big(2pe^{-qs}-(e^{qs}-e^{-qs})\frac{1+p^2}{e^{(s+2a)q}-p}\Big)+(1+p^2)\Big\}\ [2r-4a=$$

$$=2s>r>4a],=\frac{(-1)^a}{2^{2a+2}}\frac{\pi}{1-p^2}\Big\{(e^q-e^{-q})^{2a}\Big(2pe^{-qs}-(e^{qs}-e^{-qs})\frac{1+p^2}{e^{(s+2a)q}-p}\Big)+$$

$$+(1+p^2)-2pe^{(2a-s)q}\sum_0^{d-1}(-1)^n\binom{2a}{n}e^{-2nq}-2pe^{(s-2a)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{2nq}\Big\}\ [2r-4a=$$

$$=2s<r<4a,\ s\ \text{ent.}],=\frac{(-1)^a}{2^{2a+2}}\frac{\pi}{1-p^2}\Big\{(e^q-e^{-q})^{2a}\Big(2pe^{-qs}-(e^{qs}-e^{-qs})\frac{1+p^2}{e^{(s+2a)q}-p}\Big)+$$

$$+(1+p^2)-2pe^{(2a-s)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{-2nq}-2pe^{(s-2a)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{2nq}\Big\}\ [2r-4a=$$

$$=2s<r<4a,\ s\ \text{fractionn.}];\ \Big[d=\mathcal{E}\Big(a-\frac{1}{2}p\Big)\Big]\ \ (\text{V, 76}).$$

5) $$\int\frac{Sin^{2a}x\,.\,Sin\,rx\,.\,Cos\,sx}{1-2p\,Cos\,2rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+2}}\frac{\pi}{1+p}(e^q-e^{-q})^{2a}(e^{qs}+e^{-qs})\frac{e^{qr}}{e^{2qr}-p}$$

$$[s<r-2a],=\frac{(-1)^a}{2^{2a+2}}\frac{\pi}{1+p}\Big\{(e^q-e^{-q})^{2a}(e^{qs}+e^{-qs})\frac{e^{qr}}{e^{2qr}-p}-1\Big\}\ [s=r-2a]$$

(V, 89).

6) $$\int\frac{Sin^{2a}x\,.\,Sin\,sx\,.\,Cos\,rx}{1-2p\,Cos\,2rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}}{2^{2a+2}}\frac{\pi}{1-p}(e^q-e^{-q})^{2a}(e^{qs}-e^{-qs})\frac{e^{qr}}{e^{2qr}-p}$$

$$[2s>4a<r,\ \text{ou}\ r>2s<4a],=\frac{(-1)^{a-1}}{2^{2a+2}}\frac{\pi}{1-p}\Big\{(e^q-e^{-q})^{2a}(e^{qs}-e^{-qs})$$

$$\frac{e^{qr}}{e^{2qr}-p}-1\Big\}\ [s=r-2a,\ \text{et}\ 2s>r>4a\ \text{ou}\ 2s<r<4a]\ \ (\text{V, 89}).$$

7) $$\int\frac{Sin^{2a+1}x\,.\,Cos\,rx\,.\,Cos\,sx}{1-2p\,Cos\,rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}}{2^{2a+3}}\frac{\pi}{1-p^2}(e^q-e^{-q})^{2a+1}\Big\{2pe^{-qs}+(e^{qs}+e^{-qs})$$

$$\frac{1+p^2}{e^{qr}-p}\Big\}\ [2s>4a+2<r],=\frac{(-1)^{a-1}}{2^{2a+3}}\frac{\pi}{1-p^2}\Big\{(e^q-e^{-q})^{2a+1}(e^{qs}+e^{-qs})\frac{1+p^2}{e^{qr}-p}+$$

$$+2p\Big\{e^{-qs}(e^q-e^{-q})^{2a+1}-e^{(2a+1-s)q}\sum_0^{d-1}(-1)^n\binom{2a+1}{n}e^{-2nq}-e^{(s-2a-1)q}\sum_0^{d}(-1)^n$$

$\binom{2a+1}{n} e^{2nq}\Big\}\Big\}$ [$r > 2s < 4a+2$, s entier], $= \frac{(-1)^{a-1}}{2^{2a+3}} \frac{\pi}{1-p^2}\Big\{(e^q - e^{-q})^{2a+1}(e^{qs}+e^{-qs})$
$\frac{1+p^2}{e^{qr}-p} + 2p\Big\{e^{-qs}(e^q-e^{-q})^{2a+1} - e^{(2a+1-s)q}\sum_0^d (-1)^n \binom{2a+1}{n} e^{-2nq} - e^{(s-2a-1)q}$
$\sum_0^d (-1)^n\binom{2a+1}{n} e^{2nq}\Big\}\Big\}$ [$r>2s<4a+2$, s fractionn.], $=\frac{(-1)^{a-1}}{2^{2a+3}}\frac{\pi}{1-p^2}\Big\{(e^q-e^{-q})^{2a+1}$
$\Big(2pe^{-qs} + (e^{qs}+e^{-qs})\frac{1+p^2}{e^{(2a+1+s)q}-p}\Big) - (1+p^2)\Big\}$ [$4a+2<r<2s=2r-4a-2$], $=$
$= \frac{(-1)^{a-1}}{2^{2a+3}}\frac{\pi}{1-p^2}\Big\{(e^q-e^{-q})^{2a+1}\Big(2pe^{-qs}+(e^{qs}+e^{-qs})\frac{1+p^2}{e^{(s+2a+1)q}-p}\Big)-(1+p^2)+$
$+2p\Big\{e^{(2a+1-s)q}(1-e^{-2q})^{2a+1} - e^{(2a+1-s)q}\sum_0^{d-1}(-1)^n\binom{2a+1}{n}e^{-2nq} - e^{(s-2a-1)q}$
$\sum_0^d(-1)^n\binom{2a+1}{n}e^{2nq}\Big\}\Big\}$ [$4a+2>r>2s=2r-4a-2$, s entier], $=\frac{(-1)^{a-1}}{2^{2a+3}}\frac{\pi}{1-p^2}$
$\Big\{(e^q-e^{-q})^{2a+1}\Big(2pe^{-qs}+(e^{qs}+e^{-qs})\frac{1+p^2}{e^{(s+2a+1)q}-p}\Big)-(1+p^2)+2p\Big\{e^{(2a+1-s)q}$
$(1-e^{-2q})^{2a+1} - e^{(2a+1-s)q}\sum_0^d(-1)^n\binom{2a+1}{n}e^{-2nq} - e^{(s-2a-1)q}\sum_0^d(-1)^n\binom{2a+1}{n}e^{2nq}\Big\}\Big\}$
[$4a+2>r>2s=2r-4a-2$, s fractionn.]; $\Big[d = \mathcal{E}\frac{1}{2}(2a+1-s)\Big]$ (V, 78, 79).

8) $\int \frac{\sin^{2a+1}x . \cos rx . \cos sx}{1-2p\cos 2rx+p^2}\frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+3}}\frac{\pi}{1-p}(e^q-e^{-q})^{2a+1}(e^{qs}+e^{-qs})\frac{e^{qr}}{e^{2qr}-p}$
[$2s>4a+2<r$ ou $r>2s<4a+2$], $= \frac{(-1)^{a-1}}{2^{2a+3}}\frac{\pi}{1-p}\Big\{(e^q-e^{-q})^{2a+1}(e^{qs}+e^{-qs})$
$\frac{e^{qr}}{e^{2qr}-p}-1\Big\}$ [$s=r-2a-1$, et $2s>r>4a+2$ ou $2s<r<4a+2$] (V, 90).

9) $\int\frac{\cos^a x . \sin rx . \sin sx}{1-2p\cos rx+p^2}\frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+2}q}(e^q+e^{-q})^a\frac{e^{qs}-e^{-qs}}{e^{qr}-p}$ [$s\leqq r-a$] (V, 74).

10) $\int\frac{\cos^a x . \sin rx . \sin sx}{1-2p\cos 2rx+p^2}\frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+2}q(1+p)}(e^q+e^{-q})^a(e^{qs}-e^{-qs})\frac{e^{qr}}{e^{2qr}-p}$ [$s\leqq r-a$] (V, 89).

11) $\int\frac{\cos^a x . \cos rx . \cos sx}{1-2p\cos rx+p^2}\frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+2}q(1-p^2)}(e^q+e^{-q})^a\Big\{2pe^{-qs}+(e^{qs}+e^{-qs})\frac{1+p^2}{e^{qr}-p}\Big\}$
[$2s\geqq 2a\leqq r$], $=\frac{\pi}{2^{a+2}q(1-p^2)}\Big\{(e^q+e^{-q})^a(e^{qs}+e^{-qs})\frac{1+p^2}{e^{qr}-p}+2p\Big\{(e^q+e^{-q})^a e^{-qs} -$
$-e^{(a-s)q}\sum_0^d\binom{a}{n}e^{-2nq}+e^{(s-a)q}\sum_0^d\binom{a}{n}e^{2nq}\Big\}\Big\}$ $\Big[2a>2s\leqq r,\ d=\mathcal{E}\frac{1}{2}(a-s)\Big]$ (V, 74).

12) $\int\frac{Cos^a x . Cos\, rx . Cos\, sx}{1-2p\,Cos\,2rx+p^2}\frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+2}q(1-p)}(e^q+e^{-q})^a(e^{sq}+e^{-sq})\frac{e^{qr}}{e^{2qr}-p}$

$[2s\geqq 2a\leqq r$ ou $2a>2s\leqq r]$ (V, 89).

13) $\int Sin^s rx . Cos^t rx\frac{Sin\{\frac{1}{2}s\pi-(s+t)rx\}}{1-2p\,Cos\,2rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+t+1}}\frac{(1+p)^{t-1}(1-p)^{s-1}-(1+e^{-2qr})^t(1-e^{-2qr})^s}{(1-pe^{-qr})(1-pe^{qr})}$ (H, 150).

14) $\int Sin^s rx . Cos^t rx\frac{Cos\{\frac{1}{2}s\pi-(s+t)rx\}}{1-2p\,Cos\,2rx+p^2}\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+t+1}q}\frac{(1+e^{-2qr})^t(1-e^{-2qr})^s-(e^{2qr}-e^{-2qr})p(1+p)^{t-1}(1-p)^{s-1}}{(1-pe^{-qr})(1-pe^{qr})}$ (H, 150).

15) $\int Sin^{s-1} rx . Cos^{t-1} rx\frac{Sin\{(s-1)\frac{1}{2}\pi-(s+t)rx\}}{1-2p\,Cos\,2rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+t-1}}$

$\frac{(1+e^{-2qr})^{t-1}(1-e^{-2qr})^{s-1}e^{-2qr}-p(1+p)^{t-1}(1-p)^{s-1}}{(1-pe^{-qr})(1-pe^{qr})}$ (H, 168).

16) $\int Sin^{s-1} rx . Cos^{t-1} rx\frac{Cos\{(s-1)\frac{1}{2}\pi-(s+t)rx\}}{1-2p\,Cos\,2rx+p^2}\frac{dx}{q^2+x^2}=\frac{\pi e^{-2qr}}{2^{s+t-1}q}$

$\frac{(1+e^{-2qr})^{t-1}(1-e^{-2qr})^{s-1}+p^2(1+p)^{t-2}(1-p)^{s-2}(1-e^{4qr})}{(1-pe^{-qr})(1-pe^{qr})}$ (H, 168).

1) $\int\frac{Cos\,rx-p}{1-2p\,Cos\,rx+p^2}\frac{dx}{q^2+x^2}=\frac{\pi}{2q}\frac{1}{e^{qr}-p}[p^2<1],=\frac{\pi}{2q}\frac{1}{e^{-qr}-p}[p^2>1]$ (VIII, 584).

2) $\int\frac{Cos\,rx-p}{1-2p\,Cos\,rx+p^2}\frac{dx}{4q^4+x^4}=\frac{\pi}{8q^3}e^{-qr}\frac{Cos\,qr+Sin\,qr-pe^{-qr}}{1-2pe^{-qr}Cos\,qr+p^2e^{-2qr}}$ (H, 93).

3) $\int\frac{Cos\,rx-p}{1-2p\,Cos\,rx+p^2}\frac{x^2\,dx}{4q^4+x^4}=\frac{\pi}{4q}e^{-qr}\frac{Cos\,qr-Sin\,qr-pe^{-qr}}{1-2pe^{-qr}Cos\,qr+p^2e^{-2qr}}$ (H, 94).

4) $\int\frac{Cos\,rx-p}{1-2p\,Cos\,rx+p^2}\frac{dx}{1+x^{2a}}=\frac{\pi}{2a}\frac{e^{-r}}{1-pe^{-r}}-\frac{\pi}{a}\sum_1^{\frac{1}{2}(a-1)}e^{-r\,Cos\frac{n\pi}{a}}\frac{Sin\frac{n\pi}{a}.\,Sin\left(r\,Sin\frac{n\pi}{a}\right)}{1-2pe^{-r\,Cos\frac{n\pi}{a}}Cos\left(r\,Sin\frac{n\pi}{a}\right)+p^2e^{-2r\,Cos\frac{n\pi}{a}}}-\frac{\pi}{a}\sum_1^{\frac{1}{2}(a-1)}Cos\frac{n\pi}{a}\frac{e^{-r\,Cos\frac{n\pi}{a}}Cos\left(r\,Sin\frac{n\pi}{a}\right)-pe^{-2r\,Cos\frac{n\pi}{a}}}{1-2pe^{-r\,Cos\frac{n\pi}{a}}Cos\left(r\,Sin\frac{n\pi}{a}\right)+p^2e^{-2r\,Cos\frac{n\pi}{a}}}\left[\begin{matrix}a\\ \text{impair}\end{matrix}\right],=$

$$=\frac{\pi}{a}\sum_{1}^{\frac{1}{2}a-1} e^{-r\cos\left(\frac{2n+1}{2a}\pi\right)} \frac{\sin\left\{r\sin\left(\frac{2n+1}{2a}\pi\right)\right\}.\sin\left(\frac{2n+1}{2a}\pi\right)}{1-2pe^{-r\cos\left(\frac{2n+1}{2a}\pi\right)}\cos\left\{r\sin\left(\frac{2n+1}{2a}\pi\right)\right\}+p^2e^{-2r\cos\left(\frac{2n+1}{2a}\pi\right)}}+$$

$$+\frac{\pi}{a}\sum_{1}^{\frac{1}{2}a-1}\cos\left(\frac{2n+1}{2a}\pi\right)\frac{e^{-r\cos\left(\frac{2n+1}{2a}\pi\right)}\cos\left\{r\sin\left(\frac{2n+1}{2a}\pi\right)\right\}-pe^{-2r\cos\left(\frac{2n+1}{2a}\pi\right)}}{1-2pe^{-r\cos\left(\frac{2n+1}{2a}\pi\right)}\cos\left\{r\sin\left(\frac{2n+1}{2a}\pi\right)\right\}+p^2e^{-2r\cos\left(\frac{2n+1}{2a}\pi\right)}}$$

$\left[\begin{matrix}a\\ \text{pair}\end{matrix}\right]$ (IV, 302).

5) $\int\frac{1-p\cos rx-p^a\cos arx+p^{a+1}\cos\{(a-1)rx\}}{1-2p\cos rx+p^2}\frac{dx}{q^2+x^2}=\frac{\pi}{2q}\frac{1-p^ae^{-aqr}}{1-pe^{-qr}}$ (VIII, 492).

6) $\int\frac{\sin rx-p^{a-1}\sin arx+p^a\sin\{(a-1)rx\}}{1-2p\cos rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}\frac{e^{-qr}-p^{a-1}e^{-aqr}}{1-pe^{-qr}}$ (VIII, 493).

7) $\int\frac{\sin rx-p^{a-1}\sin arx+p^a\sin\{(a-1)rx\}}{1-2p\cos rx+p^2}\frac{\sin sx\,dx}{q^2+x^2}=\frac{\pi}{4pq}e^{-qs}\left\{\frac{1-p^ae^{aqr}}{1-pe^{qr}}-\frac{1-p^ae^{-aqr}}{1-pe^{-qr}}\right\}$
$[s\geqq(a-1)r]$, $=\frac{\pi}{4pq}\left\{(e^{qs}-e^{-qs})\frac{1-p^ae^{-aqr}}{1-pe^{-qr}}-e^{qs}\frac{1-p^{d+1}e^{-(d+1)qr}}{1-pe^{-qr}}+\right.$
$\left.+e^{-qs}\frac{1-p^{d+1}e^{(d+1)qr}}{1-pe^{qr}}\right\}$ $\left[s<(a-1)r,\ d=\mathcal{E}\frac{s}{r}\right]$ (VIII, 493).

8) $\int\frac{1-p\cos rx-p^a\cos arx+p^{a+1}\cos\{(a-1)rx\}}{1-2p\cos rx+p^2}\frac{x\sin sx\,dx}{q^2+x^2}=\frac{\pi}{4}e^{-qs}\left\{\frac{1-p^ae^{aqr}}{1-pe^{qr}}+\right.$
$\left.+\frac{1-p^ae^{-aqr}}{1-pe^{-qr}}\right\}$ $[s>(a-1)r]$, $=\frac{\pi}{4}e^{-qs}\left\{\frac{1-p^{a-1}e^{(a-1)qr}}{1-pe^{qr}}+\frac{1-p^ae^{-aqr}}{1-pe^{-qr}}\right\}$
$[s=(a-1)r]$, $=\frac{\pi}{4}(e^{-qs}-e^{qs})\frac{1-p^ae^{-aqr}}{1-pe^{-qr}}+\frac{\pi}{4}e^{qs}\frac{1-p^{d+1}e^{-(d+1)qr}}{1-pe^{-qr}}+$
$+\frac{\pi}{4}e^{-qs}\frac{1-p^{d+1}e^{(d+1)qr}}{1-pe^{qr}}$ $[s<(a-1)r$, fract.$]$, $=\frac{\pi}{4}(e^{-qs}-e^{qs})\frac{1-p^ae^{-aqr}}{1-pe^{-qr}}+$
$+\frac{\pi}{4}e^{qs}\frac{1-p^de^{-dqr}}{1-pe^{-qr}}+\frac{\pi}{4}e^{-qs}\frac{1-p^{d+1}e^{(d+1)qr}}{1-pe^{qr}}$ $[s<(a-1)r$, ent.$]$; $\left[d=\mathcal{E}\frac{s}{r}\right]$
(VIII, 493).

9) $\int\frac{1-p\cos rx-p^a\cos arx+p^{a+1}\cos\{(a-1)rx\}}{1-2p\cos rx+p^2}\frac{\cos sx\,dx}{q^2+x^2}=\frac{\pi}{4q}e^{-qs}\left\{\frac{1-p^ae^{aqr}}{1-pe^{qr}}+\right.$
$\left.+\frac{1-p^ae^{-aqr}}{1-pe^{-qr}}\right\}$ $[s\geqq(a-1)r]$, $=\frac{\pi}{4q}\left\{(e^{qs}+e^{-qs})\frac{1-p^ae^{-aqr}}{1-pe^{-qr}}-\right.$
$\left.-e^{qs}\frac{1-p^{d+1}e^{-(d+1)qr}}{1-pe^{-qr}}+e^{-qs}\frac{1-p^{d+1}e^{(d+1)qr}}{1-pe^{qr}}\right\}$ $\left[s<(a-1)r,d=\mathcal{E}\frac{s}{r}\right]$
(VIII, 492).

10) $$\int\frac{Sin\,rx-p^{a-1}Sin\,arx+p^aSin\{(a-1)rx\}}{1-2p\,Cos\,rx+p^2}\,\frac{x\,Cos\,sx\,dx}{q^2+x^2}=\frac{\pi}{4p}e^{-qs}\left\{\frac{1-p^ae^{-aqs}}{1-pe^{-qs}}-\frac{1-p^ae^{aqs}}{1-pe^{qs}}\right\}$$
$$[s>(a-1)r],=\frac{\pi}{4p}e^{-qs}\left\{\frac{1-p^{a-1}e^{(1-a)qr}}{1-pe^{-qr}}-\frac{1-p^{a-1}e^{(a-1)qr}}{1-pe^{qr}}+p^{a-1}e^{-2qr}\right\}[s=(a-1)r],=$$
$$=\frac{\pi}{4p}\left\{(e^{qs}+e^{-qs})\frac{1-p^ae^{-aqr}}{1-pe^{-qr}}-e^{qs}\frac{1-p^{d+1}e^{-(d+1)qr}}{1-pe^{-qr}}-e^{-qs}\frac{1-p^{d+1}e^{(d+1)qr}}{1-pe^{qr}}\right\}$$
$$[s>(a-1)r,\text{ fractionnaire}],=\frac{\pi}{4p}\left\{(e^{qs}+e^{-qs})\frac{1-p^ae^{-aqr}}{1-pe^{-qr}}-e^{qs}\frac{1-p^de^{-dqr}}{1-pe^{-qr}}-\right.$$
$$\left.-e^{-qs}\frac{1-p^{d+1}e^{(d+1)qr}}{1-pe^{qr}}\right\}\left[s<(a-1)r,\text{ entier}\right];\left[d=\mathcal{E}\frac{s}{r}\right]\text{ (VIII, 493).}$$

11) $$\int\frac{Sin\{(a+1)2rx\}-p\,Sin\{(2a+1)rx\}}{1-2p\,Cos\,rx+p^2}\,\frac{x\,Sin^{2a}rx\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+1}}e^{-qr}\frac{(1-e^{-2qr})^{2a}}{e^{qr}-p}\text{ (V, 60*).}$$

12) $$\int\frac{Cos\{(2a+3)rx\}-p\,Cos\{(a+1)2rx\}}{1-2p\,Cos\,rx+p^2}\,\frac{x\,Sin^{2a+1}rx\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+2}}e^{-qr}\frac{(1-e^{-2qr})^{2a+1}}{e^{qr}-p}\text{ (V, 60*).}$$

13) $$\int\frac{Cos\{(a+2)rx\}-p\,Cos\{(a+1)rx\}}{1-2p\,Cos\,rx+p^2}\,\frac{Cos^arx\,dx}{q^2+x^2}=\frac{\pi}{2^{a+1}qr}e^{-qr}\frac{(1+e^{-2qr})^a}{e^{qr}-p}\text{ (V, 58*).}$$

14) $$\int\frac{Sin\,2arx-p\,Sin\{(2a-1)rx\}}{1-2p\,Cos\,rx+p^2}\,\frac{x\,Sin^{2a}x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+1}}e^{(1-2a)qr}\frac{(e^q-e^{-q})^{2a}}{e^{qr}-p}[r>1],=$$
$$=\frac{(-1)^a\pi}{2^{2a+1}}\left\{\frac{(1-e^{-2q})^{2a}}{1-pe^{-q}}-1\right\}[r=1]\text{ (V, 59).}$$

15) $$\int\frac{Cos\{(2a+1)rx\}-p\,Cos\,2arx}{1-2p\,Cos\,rx+p^2}\,\frac{x\,Sin^{2a+1}x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+2}}e^{-2aqr}\frac{(e^q-e^{-q})^{2a+1}}{e^{qr}-p}[r>1],=$$
$$=\frac{(-1)^{a-1}\pi}{2^{2a+2}}\left\{\frac{(1-e^{-2q})^{2a+1}}{1-pe^{-q}}-1\right\}[r=1]\text{ (V, 59).}$$

16) $$\int\frac{Cos\,arx-p\,Cos\{(a-1)rx\}}{1-2p\,Cos\,rx+p^2}\,\frac{Cos^ax\,dx}{q^2+x^2}=\frac{\pi}{2^{a+1}q}e^{(1-a)qr}\frac{(e^q+e^{-q})^a}{e^{qr}-p}[r>1],=$$
$$=\frac{\pi}{2^{a+1}q}\,\frac{(1+e^{-2q})^a}{1-pe^{-q}}[r=1]\text{ (V, 58).}$$

17) $$\int\frac{Sin\,rx-p^{s-1}Sin\,srx+p^sSin\{(s-1)rx\}}{(1-2p\,Cos\,rx+p^2)(1-2t\,Cos\,rx+t^2)}\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2p(1-te^{-qr})(1-te^{qr})}$$
$$\left\{\frac{1-p^se^{-sqr}}{1-pe^{-qr}}-\frac{1-p^st^s}{1-pt}\right\}\text{ (H, 179).}$$

18) $$\int\frac{1-p\,Cos\,rx-p^s\,Cos\,srx+p^{s+1}Cos\{(s-1)rx\}}{(1-2p\,Cos\,rx+p^2)(1-2t\,Cos\,rx+t^2)}\,\frac{dx}{q^2+x^2}=\frac{\pi}{2q(1-te^{-qr})(1-te^{qr})}$$
$$\left\{\frac{1-p^se^{-sqr}}{1-pe^{-qr}}-\frac{1-p^st^s}{1-pt}\,\frac{p}{1-p^2}(e^{qr}-e^{-qr})\right\}\text{ (H, 179).}$$

1) $\int \frac{\operatorname{Sin} trx . \operatorname{Sin} srx}{1-2p\operatorname{Cos} rx+p^2} \frac{dx}{q^2-x^2} = \frac{\pi}{2q(1-p^2)} \frac{(1-p^2)\operatorname{Cos} tqr . \operatorname{Sin} sqr + p^{t+1}(p^s - p^{-s})\operatorname{Sin} qr}{1-2p\operatorname{Cos} qr+p^2}$ $[t > s]$ (H, 134).

2) $\int \frac{\operatorname{Sin} rx . \operatorname{Sin} sx}{1-2p\operatorname{Cos} rx+p^2} \frac{dx}{q^2-x^2} = \frac{\pi}{2q} \frac{-\operatorname{Sin} qr . \operatorname{Cos} qs + p^d \operatorname{Sin}\{(dr+r-s)q\} + p^{d+1}\operatorname{Sin}\{(s-dr)q\}}{1-2p\operatorname{Cos} qr+p^2}$ $\left[d = \mathcal{E}\frac{s}{r}\right]$ (VIII, 505).

3) $\int \frac{\operatorname{Sin} rx . \operatorname{Sin} sx}{1-2p\operatorname{Cos} 2rx+p^2} \frac{dx}{q^2-x^2} = \frac{\pi}{2q(1+p)} \frac{-(1+p)\operatorname{Sin} qr . \operatorname{Cos} qs + p^d \operatorname{Sin}\{(2dr+r-s)q\} + p^{d+1}\operatorname{Sin}\{(s-2dr+r)q\}}{1-2p\operatorname{Cos} 2qr+p^2}$ $\left[d = \mathcal{E}\frac{s}{2r}\right]$ (VIII, 538).

4) $\int \frac{\operatorname{Sin} trx . \operatorname{Cos} srx}{1-2p\operatorname{Cos} rx+p^2} \frac{x\,dx}{q^2-x^2} = \frac{\pi}{4} \frac{p^t(p^s+p^{-s}) - 2\operatorname{Cos} tqr . \operatorname{Cos} sqr}{1-2p\operatorname{Cos} qr+p^2}$ $[t > s]$, $= \frac{\pi}{4} \frac{2\operatorname{Sin} tqr . \operatorname{Sin} sqr + p^s(p^t - p^{-t})}{1-2p\operatorname{Cos} qr+p^2}$ $[t < s]$ (H, 135).

5) $\int \frac{\operatorname{Sin} rx . \operatorname{Cos} sx}{1-2p\operatorname{Cos} rx+p^2} \frac{x\,dx}{q^2-x^2} = \frac{\pi}{2} \frac{\operatorname{Sin} qs . \operatorname{Sin} qr + p^d \operatorname{Cos}\{(dr+r-s)q\} - p^{d+1}\operatorname{Cos}\{(dr-s)q\}}{1-2p\operatorname{Cos} qr+p^2}$ $\left[\frac{s}{r}\text{ fract.}\right]$, $= \frac{\pi}{4} \frac{2\operatorname{Sin} qs . \operatorname{Sin} qr - p^{d-1}(1-p^2)}{1-2p\operatorname{Cos} qr+p^2}$ $\left[\frac{s}{r}\text{ entier}\right]$; $\left[d = \mathcal{E}\frac{s}{r}\right]$ (VIII, 505).

6) $\int \frac{\operatorname{Sin} sx . \operatorname{Cos} rx}{1-2p\operatorname{Cos} rx+p^2} \frac{x\,dx}{q^2-x^2} = -\frac{\pi}{2(1-p^2)} \frac{(1-p^2)\operatorname{Cos} qs . \operatorname{Cos} qr - (1+p^2)p^d \operatorname{Cos}\{(dr+r-s)q\} + (1+p^2)p^{d+1}\operatorname{Cos}\{(s-dr)q\}}{1-2p\operatorname{Cos} qr+p^2}$ $\left[\frac{s}{r}\text{ fract.}\right]$, $= \frac{\pi}{4}p^{d-1} + \frac{\pi}{4p} \frac{p^{d-1} - \operatorname{Cos} qs . \operatorname{Cos} qr}{1-2p\operatorname{Cos} qr+p^2}$ $\left[\frac{s}{r}\text{ entier}\right]$; $\left[d = \mathcal{E}\frac{s}{r}\right]$ (VIII, 504).

7) $\int \frac{\operatorname{Sin} rx . \operatorname{Cos} sx}{1-2p\operatorname{Cos} 2rx+p^2} \frac{x\,dx}{q^2-x^2} = \frac{\pi}{2(1+p)} \frac{(1+p)\operatorname{Sin} qr . \operatorname{Sin} qs + p^d \operatorname{Cos}\{(2ds+r-s)q\} - p^{d+1}\operatorname{Cos}\{(2dr-r-s)q\}}{1-2p\operatorname{Cos} 2qr+p^2}$ $\left[\frac{s}{2r}\text{ fract.}\right]$, $= \frac{\pi}{8(1+p)} \frac{4(1+p)\operatorname{Sin} qr . \operatorname{Sin} qs - \{1+(-1)^d\} p^{\frac{1}{2}d}(1-p)\operatorname{Cos} qr - \{1+(-1)^{d+1}\}(1-p^2)p^{\frac{1}{2}(d-1)}}{1-2p\operatorname{Cos} 2qr+p^2}$ $\left[\frac{s}{2r}\text{ entier}\right]$; $\left[d = \mathcal{E}\frac{s}{2r}\right]$ (VIII, 538).

8) $\int \frac{\operatorname{Sin} sx . \operatorname{Cos} rx}{1-2p\operatorname{Cos} 2rx+p^2} \frac{x\,dx}{q^2-x^2} = \frac{\pi}{2(1-p)} \frac{(1-p)\operatorname{Cos} qr . \operatorname{Cos} qs + p^d \operatorname{Cos}\{(2dr+r-s)q\} -}{1-}$

$$\frac{-p^{d+1}\,Cos\{(s-2dr+r)q\}}{-2p\,Cos\,2qr+p^2}\left[\frac{s}{2r}\text{ fract.}\right],=\frac{\pi}{8(1-p)}\,\frac{4(1-p)\,Cos\,qr.Cos\,qs-\{1+(-1)^d\}}{1-}$$

$$\frac{p^{\frac{1}{2}d}(1-p)Cos\,qr-\{1+(-1)^{d+1}\}(1-p\,Cos\,2qr)p^{\frac{1}{2}(d-1)}}{-2p\,Cos\,2qr+p^2}\left[\frac{s}{2r}\text{ entier}\right];\left[d=\mathcal{E}\frac{s}{2r}\right]\text{ (VIII, 538).}$$

9) $$\int\frac{Cos\,trx.Cos\,srx}{1-2p\,Cos\,rx+p^2}\,\frac{dx}{q^2-x^2}=\frac{\pi}{2q(1-p^2)}\,\frac{(1-p^2)\,Sin\,tqr.Cos\,sqr+p^{t+1}(p^s+p^{-s})\,Sin\,qr}{1-2p\,Cos\,qr+p^2}$$
$[t>s]$ (H, 134).

10) $$\int\frac{Cos\,rx.Cos\,sx}{1-2p\,Cos\,rx+p^2}\,\frac{dx}{q^2-x^2}=\frac{\pi}{2q(1-p^2)}\,\frac{(1-p^2)Cos\,qr.Sin\,qs+(1+p^2)p^d\,Sin\{(dr+r-s)q\}+}{1-}$$
$$\frac{+(1+p^2)p^{d+1}\,Sin\{(s-dr)q\}}{-2p\,Cos\,qr+p^2}\left[d=\mathcal{E}\frac{s}{r}\right]\text{ (VIII, 504).}$$

11) $$\int\frac{Cos\,rx.Cos\,sx}{1-2p\,Cos\,2rx+p^2}\,\frac{dx}{q^2-x^2}=\frac{\pi}{2q(1-p)}\,\frac{(1-p)\,Cos\,qr.Sin\,qs+p^d\,Sin\{(2dr+r-s)q\}+}{1-}$$
$$\frac{+p^{d+1}\,Sin\{(s-2dr+r)q\}}{-2p\,Cos\,2qr+p^2}\left[d=\mathcal{E}\frac{s}{2r}\right]\text{ (VIII, 538).}$$

12) $$\int\frac{Sin^s rx.Sin(\frac{1}{2}s\pi-srx)}{1-2p\,Cos\,2rx+p^2}\,\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2^{s+1}}\,\frac{2^s\,Sin^s qr.Cos(\frac{1}{2}s\pi-sqr)-(1-p)^s}{1-2p\,Cos\,2qr+p^2}\text{ (H, 148).}$$

13) $$\int\frac{Sin^s rx.Cos(\frac{1}{2}s\pi-srx)}{1-2p\,Cos\,2rx+p^2}\,\frac{dx}{q^2-x^2}=\frac{\pi}{2^{s+1}q}\,\frac{1}{1-2p\,Cos\,2qr+p^2}\left\{\frac{2p}{1+p}\,Sin\,2qr.(1-p)^{s-1}-\right.$$
$$\left.-2^s\,Sin^s qr.Sin\left(\frac{1}{2}s\pi-sqr\right)\right\}\text{ (H, 148).}$$

14) $$\int\frac{Sin^{s-1}rx.Sin\{(s-1)\frac{1}{2}\pi-(s+1)rx\}}{1-2p\,Cos\,2rx+p^2}\,\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\,\frac{2^{1-s}p(1-p)^{s-1}-Sin^{s-1}qr.}{1-}$$
$$\frac{Cos\{(s-1)\frac{1}{2}\pi-(s+1)qr\}}{-2p\,Cos\,2qr+p^2}\text{ (H, 171).}$$

15) $$\int\frac{Sin^{s-1}rx.Cos\{(s-1)\frac{1}{2}\pi-(s+1)rx\}}{1-2p\,Cos\,2rx+p^2}\,\frac{dx}{q^2-x^2}=\frac{\pi}{2q}\,\frac{1}{1-2p\,Cos\,2qr+p^2}\left\{2^{2-s}\frac{p}{1+p}\right.$$
$$\left.(1-p)^{s-2}\,Sin\,2qr+Sin^{s-1}qr.Sin\left\{(s-1)\frac{1}{2}\pi-(s+1)qr\right\}\right\}\text{ (H, 171).}$$

16) $$\int\frac{Cos^s rx.Sin\,srx}{1-2p\,Cos\,2rx+p^2}\,\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2^{s+1}}\,\frac{(1+p)^s-2^s\,Cos^s qr.Cos\,sqr}{1-2p\,Cos\,2qr+p^2}\text{ (H, 146).}$$

17) $$\int\frac{Cos^s rx.Cos\,srx}{1-2p\,Cos\,2rx+p^2}\,\frac{dx}{q^2-x^2}=\frac{\pi}{2^{s+1}q}\,\frac{1}{1-2p\,Cos\,2qr+p^2}\left\{\frac{2p}{1-p}\,Sin\,2qr.(1+p)^{s-1}+\right.$$
$$\left.+2^s\,Cos^s qr.Sin\,sqr\right\}\text{ (H, 146).}$$

18) $$\int \frac{Cos^{s-1} rx . Sin\{(s+1)rx\}}{1-2p\,Cos 2rx+p^2}\,\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2^s}\,\frac{(1+p)^{s-1}p-2^s\,Cos^{s-1}qr . Cos\{(s+1)qr\}}{1-2p\,Cos 2qr+p^2}$$ (H, 166).

19) $$\int \frac{Cos^{s-1} rx . Cos\{(s+1)rx\}}{1-2p\,Cos 2rx+p^2}\,\frac{dx}{q^2-x^2}=\frac{\pi}{2^{s-2}q}\,\frac{1}{1-2p\,Cos 2qr+p^2}\left\{\frac{p^2}{1-p}(1+p)^{s-2}\,Sin 2qr+\right.$$
$$\left.+2^{s-3}\,Cos^{s-1}qr . Sin\{(s+1)qr\}\right\}$$ (H, 166).

20) $$\int \frac{Sin^s rx . Cos^t rx . Sin\{\tfrac{1}{2}s\pi-(s+t)rx\}}{1-2p\,Cos 2rx+p^2}\,\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\,\frac{Sin^s qr . Cos^t qr . Cos\{\tfrac{1}{2}s\pi-(s+t)qr\}-2^{-s-t}(1+p)^t(1-p)^s}{1-2p\,Cos 2qr+p^2}$$ (H, 150).

21) $$\int \frac{Sin^s rx . Cos^t rx . Cos\{\tfrac{1}{2}s\pi-(s+t)rx\}}{1-2p\,Cos 2rx+p^2}\,\frac{dx}{q^2-x^2}=\frac{\pi}{2q}\,\frac{2^{1-s-t}p(1+p)^{t-1}(1-s)^{s-1}\,Sin 2qr-Sin^s qr . Cos^t qr . Sin\{\tfrac{1}{2}s\pi-(s+t)qr\}}{1-2p\,Cos 2qr+p^2}$$ (H, 150).

22) $$\int \frac{Sin^{s-1} rx . Cos^{t-1} rx . Sin\{(s-1)\tfrac{1}{2}\pi-(s+t)rx\}}{1-2p\,Cos 2rx+p^2}\,\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\,\frac{2^{2-s-t}p(1+p)^{t-1}(1-p)^{s-1}-Sin^{s-1}qr . Cos^{t-1}qr . Cos\{(s-1)\tfrac{1}{2}\pi-(s+t)qr\}}{1-2p\,Cos 2qr+p^2}$$ (H, 171).

23) $$\int \frac{Sin^{s-1} rx . Cos^{t-1} rx . Cos\{(s-1)\tfrac{1}{2}\pi-(s+t)rx\}}{1-2p\,Cos 2rx+p^2}\,\frac{dx}{q^2-x^2}=\frac{\pi}{2q}\,\frac{2^{3-s-t}(1+p)^{t-2}(1-p)^{s-2}p\,Sin 2qr+Sin^{s-1}qr . Cos^{t-1}qr . Sin\{(s-1)\tfrac{1}{2}\pi-(s+t)qr\}}{1-2p\,Cos 2qr+p^2}$$ (H, 170).

1) $$\int \frac{1-p\,Cos rx-p^a\,Cos arx+p^{a+1}\,Cos\{(a-1)rx\}}{1-2p\,Cos rx+p^2}\,\frac{dx}{q^2-x^2}=\frac{\pi}{2q}\,\frac{p\,Sin qr-p^a\,Sin aqr+p^{a+1}\,Sin\{(a-1)qr\}}{1-2p\,Cos qr+p^2}$$ (VIII, 502).

2) $$\int \frac{Sin rx-p^{a-1}\,Sin arx+p^a\,Sin\{(a-1)rx\}}{1-2p\,Cos rx+p^2}\,\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\,\frac{p-Cos qr+p^{a-1}\,Cos aqr-p^a\,Cos\{(a-1)qr\}}{1-2p\,Cos qr+p^2}$$ (VIII, 503).

3) $$\int\frac{\sin rx-p^{a-1}\sin arx+p^a\sin\{(a-1)rx\}}{1-2p\cos rx+p^2}\,\frac{\sin sx\,dx}{q^2-x^2}=-\frac{\pi}{2q}\cos qs\,\frac{\sin qr-p^{a-1}\sin aqr+p^a\sin\{(a-1)qr\}}{1-2p\cos qr+p^2}\;[s\geqq(a-1)r],=\frac{\pi}{2q}\,\frac{-\sin qr.\cos qs-p^d\sin\{(s-dr-r)q\}+p^{d+1}\sin\{(s-dr)q\}+p^{a-1}\sin qs.\cos aqr-p^a\sin qs.\cos\{(a-1)qr\}}{1-2p\cos qr+p^2}\;[s<(a-1)r];$$

$\left[d=\mathcal{E}\frac{s}{r}\right]$ (VIII, 503).

4) $$\int\frac{1-p\cos rx-p^a\cos arx+p^{a+1}\cos\{(a-1)rx\}}{1-2p\cos rx+p^2}\,\frac{x\sin sx\,dx}{q^2-x^2}=-\frac{\pi}{2}\cos qs\,\frac{1-p\cos qr-p^a\cos aqr+p^{a+1}\cos\{(a-1)qr\}}{1-2p\cos qr+p^2}\;[s>(a-1)r],=\frac{\pi}{4}p^{a-1}-\frac{\pi}{2}\cos\{(a-1)qr\}\,\frac{1-p\cos qr-p^a\cos aqr+p^{a+1}\cos\{(a-1)qr\}}{1-2p\cos qr+p^2}\;[s=(a-1)r],=\frac{\pi}{2}\,\frac{\cos qs.(p\cos qr-1)+p^{d+1}\cos\{(s-dr-r)q\}-p^{d+2}\cos\{(s-dr)q\}-p^a\sin qs.\sin aqr+p^{a+1}\sin qs.\sin\{(a-1)qr\}}{1-2p\cos qr+p^2}$$

$$\left[s<(a-1)r,\ \frac{s}{r}\text{ fract.}\right],=\frac{\pi}{4}p^d+\frac{\pi}{2}\,\frac{\cos qs.(p\cos qr-1)+p^{d+1}\cos qr-p^{d+2}-p^a\sin qs.\sin aqr+p^{a+1}\sin qs.\sin\{(a-1)qr\}}{1-2p\cos qr+p^2}\left[s<(a-1)r,\ \frac{s}{r}\text{ entier}\right];\left[d=\mathcal{E}\frac{s}{r}\right]$$ (VIII, 503).

5) $$\int\frac{1-p\cos rx-p^a\cos arx+p^{a+1}\cos\{(a-1)rx\}}{1-2p\cos rx+p^2}\,\frac{\cos sx\,dx}{q^2-x^2}=\frac{\pi}{2q}\sin qs\,\frac{1-p\cos qr-p^a\cos aqr+p^{a+1}\cos\{(a-1)qr\}}{1-2p\cos qr+p^2}\;[s\geqq(a-1)r],=\frac{\pi}{2q}\,\frac{\sin qs.(1-p\cos qr)-p^{d+1}\sin\{(s-dr-r)q\}+p^{d+2}\sin\{(s-dr)q\}-p^a\cos qs.\sin aqr+p^{a+1}\cos qs.\sin\{(a-1)qr\}}{1-2p\cos qr+p^2}\;[s<(a-1)r];$$

$\left[d=\mathcal{E}\frac{s}{r}\right]$ (VIII, 502, 503).

6) $$\int\frac{\sin rx-p^{a-1}\sin arx+p^a\sin\{(a-1)rx\}}{1-2p\cos rx+p^2}\,\frac{x\cos sx\,dx}{q^2-x^2}=\frac{\pi}{2}\sin qs\,\frac{\sin qr-p^{a-1}\sin aqr+p^a\sin\{(a-1)qr\}}{1-2p\cos qr+p^2}\;[s>(a-1)r],=-\frac{\pi}{4}p^{a-2}+\frac{\pi}{2}\sin qs\,\frac{\sin qr-p^{a-1}\sin aqr+p^a\sin\{(a-1)qr\}}{1-2p\cos qr+p^2}\;[s=(a-1)r],=\frac{\pi}{2}\,\frac{\sin qs.\sin qr-p^d\cos\{(s-dr-r)q\}+p^{d+1}\cos\{(s-dr)q\}-p^{a-1}\cos aqr+p^a\cos\{(a-1)qr\}}{1-2p\cos qr+p^2}\left[s<(a-1)r,\ \frac{s}{r}\text{ fract.}\right],=$$

$$=-\frac{\pi}{4}p^{d-1}+\frac{\pi}{2}\frac{\operatorname{Sin} qs.\operatorname{Sin} qr-p^d \operatorname{Cos} qr+p^{s+1}-p^{s-1}\operatorname{Cos} sqr+p^s \operatorname{Cos}\{(s-1)qr\}}{1-2p\operatorname{Cos} qr+p^2}$$

$\left[s<(a-1)r, \frac{s}{r}\text{ entier}\right]; \left[d=\mathcal{E}\frac{s}{r}\right]$ (VIII, 503, 504).

7) $\int\frac{1-p\operatorname{Cos} rx-p^s\operatorname{Cos} srx+p^{s+1}\operatorname{Cos}\{(s-1)rx\}}{(1-2p\operatorname{Cos} rx+p^2)(1-2u\operatorname{Cos} rx+u^2)}\frac{dx}{q^2-x^2}=\frac{\pi}{2q(1-2u\operatorname{Cos} qr+u^2)}$
$\left\{\frac{2u}{1-u^2}\operatorname{Sin} qr\frac{1-p^s u^s}{1-pu}+\frac{p\operatorname{Sin} qr-p^s\operatorname{Sin} sqr+p^{s+1}\operatorname{Sin}\{(s-1)qr\}}{1-2p\operatorname{Cos} qr+p^2}\right\}$ (H, 179).

8) $\int\frac{\operatorname{Sin} rx-p^{s-1}\operatorname{Sin} srx+p^s\operatorname{Sin}\{(s-1)rx\}}{(1-2p\operatorname{Cos} rx+p^2)(1-2u\operatorname{Cos} rx+u^2)}\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2p(1-2u\operatorname{Cos} qr+u^2)}$
$\left\{\frac{1-p^s u^s}{1-pu}-\frac{1-p\operatorname{Cos} qr-p^s\operatorname{Cos} sqr+p^{s+1}\operatorname{Cos}\{(s-1)qr\}}{1-2p\operatorname{Cos} qr+p^2}\right\}$ (H, 179).

F. Alg. rat. fract. à dén. bin. $(q^2-x^2)^2$; Circ. Dir. en dén.; $[p^2<1]$ TABLE 199. Lim. 0 et ∞.

1) $\int\frac{\operatorname{Sin} 2srx}{\operatorname{Sin} rx}\frac{dx}{(q^2-x^2)^2}=\frac{\pi}{4q^3}\left\{2\frac{\operatorname{Sin}^2 sqr}{\operatorname{Sin} qr}-sqr\frac{\operatorname{Sin} 2sqr}{\operatorname{Sin} qr}+2qr\frac{\operatorname{Cos} qr}{\operatorname{Sin}^2 qr}\operatorname{Sin}^2 sqr\right\}$ (H, 132).

2) $\int\frac{\operatorname{Sin} 2srx}{\operatorname{Sin} rx}\frac{x^2\,dx}{(q^2-x^2)^2}=\frac{\pi}{4q}\left\{-2\frac{\operatorname{Sin}^2 sqr}{\operatorname{Sin} qr}-sqr\frac{\operatorname{Sin} 2sqr}{\operatorname{Sin} qr}+2qr\frac{\operatorname{Cos} qr}{\operatorname{Sin}^2 qr}\operatorname{Sin}^2 sqr\right\}$ (H, 132).

3) $\int\frac{\operatorname{Sin}^2 srx}{\operatorname{Sin} rx}\frac{x\,dx}{(q^2-x^2)^2}=\frac{\pi r}{4q}\left\{\frac{\operatorname{Cos} qr}{\operatorname{Sin}^2 qr}\operatorname{Sin} 2sqr-sqr\frac{\operatorname{Cos} 2sqr}{\operatorname{Sin} qr}\right\}$ (H, 132).

4) $\int\frac{\operatorname{Sin}^2 srx}{\operatorname{Sin} rx}\frac{x^3\,dx}{(q^2-x^2)^2}=\frac{\pi}{4}\left\{\frac{\operatorname{Sin} 2sqr}{\operatorname{Sin} 2qr}+2sqr\frac{\operatorname{Cos} 2sqr}{\operatorname{Sin} qr}-qr\frac{\operatorname{Cos} qr}{\operatorname{Sin}^2 qr}\operatorname{Sin} 2sqr\right\}$ (H, 132).

5) $\int\frac{\operatorname{Sin} rx}{1-2p\operatorname{Cos} rx+p^2}\frac{x\,dx}{(q^2-x^2)^2}=-\frac{1-p^2}{4q}\frac{\pi r\operatorname{Sin} qr}{(1-2p\operatorname{Cos} qr+p^2)^2}$ (H, 137).

6) $\int\frac{\operatorname{Sin} rx}{1-2p\operatorname{Cos} rx+p^2}\frac{x^3\,dx}{(q^2-x^2)^2}=\frac{\pi}{2}\frac{\operatorname{Cos} qr-p}{1-2p\operatorname{Cos} qr+p^2}-\frac{1-p^2}{4}\frac{\pi qr\operatorname{Sin} qr}{(1-2p\operatorname{Cos} qr+p^2)^2}$ (H, 137).

7) $\int\frac{1-p\operatorname{Cos} rx}{1-2p\operatorname{Cos} rx+p^2}\frac{dx}{(q^2-x^2)^2}=\frac{p\pi}{4q^3}\frac{\operatorname{Sin} qr}{1-2p\operatorname{Cos} qr+p^2}-\frac{\pi pr}{4q^2}\frac{(1+p^2)\operatorname{Cos} qr-2p}{(1-2p\operatorname{Cos} qr+p^2)^2}$ (H, 137).

8) $\int\frac{1-p\operatorname{Cos} rx}{1-2p\operatorname{Cos} rx+p^2}\frac{x^2\,dx}{(q^2-x^2)^2}=\frac{-p\pi}{4q}\frac{\operatorname{Sin} qr}{1-2p\operatorname{Cos} qr+p^2}-\frac{1}{4}\pi pr\frac{(1+p^2)\operatorname{Cos} qr-2p}{(1-2p\operatorname{Cos} qr+p^2)^2}$ (H, 137).

$$\frac{Sin\,srx - p\,Sin\{(s-1)rx\}}{1-2p\,Cos\,rx+p^2}\,\frac{x\,dx}{(q^2-x^2)^2} = \frac{r\pi}{2pq}\,\frac{s\,Sin\,sqr - p[2s\,Sin\{(s-1)qr\} + (s-1)Sin\{(s+1)qr\}] + p^2[2(s-1)Sin\,sqr + s\,Sin\{(s-2)qr\}] - (s-1)p^3\,Sin\{(s-1)qr\}}{(1-2p\,Cos\,qr+p^2)^2}$$

(H, 138).

10) $$\int\frac{Sin\,srx - p\,Sin\{(s-1)rx\}}{1-2p\,Cos\,rx+p^2}\,\frac{x^2\,dx}{(q^2-x^2)^2} = \frac{\pi}{4p}\left\{2p\,\frac{Cos\,sqr - p\,Cos\{(s-1)qr\}}{1-2p\,Cos\,qr+p^2} - qr\,\frac{s\,Sin\,sqr - p[2s\,Sin\{(s-1)qr\} + (s-1)Sin\{(s+1)qr\}] + p^2[2(s-1)Sin\,sqr + s\,Sin\{(s-2)qr\}] - (s-1)p^3\,Sin\{(s-1)qr\}}{(1-2p\,Cos\,qr+p^2)^2}\right\}$$ (H, 138).

11) $$\int\frac{Cos\,srx - p\,Cos\{(s-1)rx\}}{1-2p\,Cos\,rx+p^2}\,\frac{dx}{(q^2-x^2)^2} = \frac{\pi}{4q^3}\left\{\frac{Sin\,sqr - p\,Sin\{(s-1)qr\}}{1-2p\,Cos\,qr+p^2} - \frac{qr}{p}\,\frac{s\,Cos\,sqr - p[2s\,Cos\{(s-1)qr\} + (s-1)Cos\{(s+1)qr\}] + p^2[2(s-1)Cos\,sqr + s\,Cos\{(s-2)qr\}] - (s-1)p^3\,Cos\{(s-1)qr\}}{(1-2p\,Cos\,qr+p^2)^2}\right\}$$ (H, 137).

12) $$\int\frac{Cos\,srx - p\,Cos\{(s-1)rx\}}{1-2p\,Cos\,rx+p^2}\,\frac{x^2\,dx}{(q^2-x^2)^2} = -\frac{\pi}{4q}\left\{\frac{Sin\,sqr - p\,Sin\{(s-1)qr\}}{1-2p\,Cos\,qr+p^2} + \frac{qr}{p}\,\frac{s\,Cos\,sqr - p[2s\,Cos\{(s-1)qr\} + (s-1)Cos\{(s+1)qr\}] + p^2[2(s-1)Cos\,sqr + s\,Cos\{(s-2)qr\}] - (s-1)p^3\,Cos\{(s-1)qr\}}{(1-2p\,Cos\,qr+p^2)^2}\right\}$$ (H, 137).

F. Alg. rat. fract. à dén. trinôme; Circ. Dir. en dén.; $[p^2<1]$. **TABLE 200.** Lim. 0 et ∞.

1) $$\int\frac{1}{1-2p\,Cos\,rx+p^2}\,\frac{dx}{x^4+2q^2x^2\,Cos\,2\lambda+q^4} = \frac{\pi\,Cosec\,2\lambda}{2q^3(1-p^2)}\,\frac{(e^{qr\,Cos\,\lambda} - p^2 e^{-qr\,Cos\,\lambda})\,Sin\,\lambda + 2p\,Sin(qr\,Sin\,\lambda).Cos\,\lambda}{e^{qr\,Cos\,\lambda} - 2p\,Cos(qr\,Sin\,\lambda) + p^2 e^{-qr\,Cos\,\lambda}}$$ (VIII, 478).

2) $$\int\frac{Sin\,rx}{1-2p\,Cos\,rx+p^2}\,\frac{x\,dx}{x^4+2q^2x^2\,Cos\,2\lambda+q^4} = \frac{\pi\,Cosec\,2\lambda}{2q^2}\,\frac{Sin(qr\,Sin\,\lambda)}{e^{qr\,Cos\,\lambda} - 2p\,Cos(qr\,Sin\,\lambda) + p^2 e^{-qr\,Cos\,\lambda}}$$

(VIII, 477).

3) $\int \frac{Cos\, r x}{1-2p\, Cos\, r x+p^2} \cdot \frac{dx}{x^4+2q^2x^2\, Cos\, 2\lambda+q^4} = \frac{\pi\, Cosec\, 2\lambda}{2q^2(1-p^2)} \frac{2\, Cos(qr\, Sin\, \lambda).Sin\, \lambda + p(e^{qr\, Cos\, \lambda}-e^{-qr\, Cos\, \lambda})+(1+p^2)\, Sin(qr\, Sin\, \lambda-\lambda)}{e^{qr\, Cos\, \lambda}-2p\, Cos(qr\, Sin\, \lambda)+p^2 e^{-qr\, Cos\, \lambda}}$ (VIII, 478).

4) $\int \frac{Sin\, r x}{1-2p\, Cos\, 2 r x+p^2} \frac{x\, dx}{x^4+2q^2x^2\, Cos\, 2\lambda+q^4} = \frac{\pi}{2q^2} \frac{1+p e^{-2qr\, Cos\, \lambda}}{(1+p)\, Sin\, 2\lambda} \frac{e^{qr\, Cos\, \lambda}\, Sin(qr\, Sin\, \lambda)}{e^{2qr\, Cos\, \lambda}-2p\, Cos(2qr\, Sin\, \lambda)+p^2 e^{-2qr\, Cos\, \lambda}}$ V. T. 200, N. 2.

5) $\int \frac{x^2-p^2\, Sin^2 x}{x^4-2p^2x^2\, Sin^2 x.\, Cos\, 2x+p^4\, Sin^4 x} Sin^2 x\, dx = \frac{\pi}{2p} \frac{e^p-e^{-p}}{e^p+e^{-p}}$

Hamilton, L. & E. Phil. Mag. 23, 360.

F. Alg. rat. fract. à dén. composé; Circ. Dir. en dén.; $[p^2<1]$. TABLE 201. Lim. 0 et ∞.

1) $\int \frac{Sin^2\, s r x}{Sin\, r x} \frac{dx}{x(q^2+x^2)} = \frac{\pi}{2q^2}\left[s+\frac{1-e^{-2sqr}}{e^{qr}-e^{-qr}}\right]$ (H, 175).

2) $\int \frac{Sin^2\, s r x}{Sin\, r x} \frac{dx}{x(q^2-x^2)} = \frac{\pi}{4q^2}\left[2s-\frac{Sin\, 2sqr}{Sin\, qr}\right]$ (H, 175).

3) $\int \frac{Sin^2\, s r x}{Sin\, r x} \frac{dx}{x(4q^4+x^4)} = \frac{\pi}{4q^4}\left[s-\frac{(1-e^{-2qr})e^{qr}\, Cos\, qr-e^{-(2s-1)qr}\, Cos\{(2s+1)qr\}+e^{-(2s+1)qr}\, Cos\{(2s-1)qr\}}{e^{2qr}-2\, Cos\, 2qr+e^{-2qr}}\right]$ (H, 175).

4) $\int \frac{Sin^2\, s r x}{Sin\, r x} \frac{dx}{x(q^4-x^4)} = \frac{\pi}{8q^4}\left[4s+2\frac{1-e^{-2sqr}}{e^{qr}-e^{-qr}}-\frac{Sin\, 2sqr}{Sin\, qr}\right]$ (H, 175).

5) $\int \frac{Sin\, s r x}{1-2p\, Cos\, r x+p^2} \frac{dx}{x(q^2+x^2)} = \frac{\pi}{2q^2}\left[\frac{1-p^s}{(1-p)^2}+\frac{p^s-e^{-sqr}}{(1-pe^{qr})(1-pe^{-qr})}\right]$ (H, 178).

6) $\int \frac{Sin\, s r x}{1-2p\, Cos\, r x+p^2} \frac{dx}{x(q^2-x^2)} = \frac{\pi}{2q^2}\left[\frac{1-p^s}{(1-p)^2}+\frac{p^s-Cos\, sqr}{1-2p\, Cos\, qr+p^2}\right]$ (H, 178).

7) $\int \frac{Sin\, s r x}{1-2p\, Cos\, r x+p^2} \frac{dx}{x(4q^4+x^4)} = \frac{\pi}{8q^4}\left[\frac{1-p^s}{(1-p)^2}+\frac{p^{s-1}-1}{1-p} \frac{e^{-qr}}{1-2pe^{-qr}\, Cos\, qr+p^2e^{-2qr}} - \frac{p^s e^{qr}(p\, Cos\, qr-e^{-qr})(1-e^{-2qr})-p\, e^{-(s-1)qr}\, Cos\{(s+1)qr\}+(1+p^2)}{(1-2pe^{-qr}\, Cos\, qr+p^2e^{-2qr})} \frac{e^{-sqr}\, Cos\, sqr-pe^{-(s+1)qr}\, Cos\{(s-1)qr\}}{(1-2pe^{qr}\, Cos\, qr+p^2e^{2qr})}\right]$ (H, 178).

$$\int \frac{\mathrm{Sin}\,2rx}{\ldots -2p\,\mathrm{Cos}\,rx+p^2}\,\frac{dx}{x(q^4-x^4)}=\frac{\pi}{4q^4}\left[2\frac{1-p^2}{(1-p)^2}+\frac{p^2-e^{-2qr}}{(1-pe^{qr})(1-pe^{-qr})}+\right.$$
$$\left.+\frac{p^2-\mathrm{Cos}\,2qr}{1-2p\,\mathrm{Cos}\,qr+p^2}\right] \text{ (H, 178).}$$

$$\frac{\mathrm{Sin}\,2rx}{\ldots 2p\,\mathrm{Cos}\,2rx+p^2}\,\frac{dx}{x(q^2+x^2)}=\frac{1}{2}\,\frac{\pi}{1+p}\,\frac{e^{qr}-e^{-qr}}{e^{qr}+pe^{-qr}}$$ V. T. 185, N. 3 et T. 192, N. 2.

$$\frac{x^2-p^2\,\mathrm{Sin}^2x}{\ldots^2-px\,\mathrm{Sin}\,2x+p^2\,\mathrm{Sin}^2x}\,\mathrm{Sin}\,x\,\frac{dx}{x}=\pi\left(e^{-\frac{1}{2}p}-\frac{1}{2}\right)$$ Bronwin, L. & E. Phil. Mag. 24, 491.

F. Algébrique; Circ. Dir. — **TABLE 202.** — Lim. −∞ et ∞.

1) $\int\frac{\mathrm{Sin}\,px}{x+q}\,dx=\pi\,\mathrm{Cos}\,pq$ (IV, 315).

2) $\int\frac{\mathrm{Sin}\,px}{x-r\pm qi}\,dx=\pi\,e^{-p(q\pm ri)}$ (IV, 315).

3) $\int\frac{\mathrm{Sin}\,px}{x-q}\,dx=\pi\,\mathrm{Cos}\,pq$ (IV, 315).

4) $\int\frac{\mathrm{Cos}\,px}{x+q}\,dx=\pi\,\mathrm{Sin}\,pq$ (IV, 316).

5) $\int\frac{\mathrm{Cos}\,px}{x-r\pm qi}\,dx=\mp\pi i\,e^{-p(q\pm ri)}$ (IV, 316).

6) $\int\frac{\mathrm{Cos}\,px}{x-q}\,dx=-\pi\,\mathrm{Sin}\,pq$ (IV, 316).

7) $\int\frac{\mathrm{Sin}\,x}{(q\pm xi)^{1-p}}\,dx=\mp e^{-q}\,\Gamma(p)\,i\,\mathrm{Sin}\,p\pi$ (IV, 315).

8) $\int\frac{\mathrm{Cos}\,x}{(q\pm xi)^{1-p}}\,dx=e^{-q}\,\Gamma(p)\,\mathrm{Sin}\,p\pi$ (IV, 316).

9) $\int\frac{\mathrm{Sin}\,\{r(p-x)\}}{q^2+x^2}\,dx=\pi e^{-qr}\,\mathrm{Sin}\,pr$ (IV, 315).

10) $\int\frac{x\,\mathrm{Sin}\,px}{q^2+x^2}\,dx=\pi e^{-pq}$ (IV, 315).

11) $\int\frac{\mathrm{Cos}\,\{r(p-x)\}}{q^2+x^2}\,dx=\pi\,e^{-qr}\,\mathrm{Cos}\,pr$ (IV, 317).

12) $\int\frac{p+qx}{r+2sx+x^2}\,\mathrm{Sin}\,tx\,dx=\left(\frac{qs-p}{\sqrt{r-s^2}}\,\mathrm{Sin}\,st+q\,\mathrm{Cos}\,st\right)\pi\,e^{-t\sqrt{(r-s^2)}}$ (IV, 315).

13) $\int\frac{p+qx}{r+2sx+x^2}\,\mathrm{Cos}\,tx\,dx=\left(\frac{p-qs}{\sqrt{r-s^2}}\,\mathrm{Cos}\,st+q\,\mathrm{Sin}\,st\right)\pi\,e^{-t\sqrt{(r-s^2)}}$ (IV, 317).

14) $\int\frac{\mathrm{Cos}\,\{(q-1)\lambda\}-x\,\mathrm{Cos}\,q\lambda}{1-2x\,\mathrm{Cos}\,\lambda+x^2}\,\mathrm{Cos}\,rx\,dx=\pi\,e^{-r\,\mathrm{Sin}\,\lambda}\,\mathrm{Sin}\,(q\lambda+r\,\mathrm{Cos}\,\lambda)$ (IV, 317).

15) $\int\mathrm{Cos}\left(qx-\frac{qr}{x}\right)\frac{dx}{1+\left(x-\frac{r}{x}\right)^2}=\pi\,e^{-q}$ Boole, C. & D. M. J. 4, 14.

16) $\int \frac{Cos\left\{p\left(x-\frac{q_1}{x-r_1}-\ldots-\frac{q_a}{x-r_a}\right)\right\}}{1+\left(x-\frac{q_1}{x-r_1}-\ldots-\frac{q_a}{x-r_a}\right)^2}\,dx=\pi e^{-p}$ Boole, Phil. Trans. 1857.

17) $\int \frac{(e^{qr}+e^{-qr})\,Cos\,qx-(e^{qr}-e^{-qr})\,i\,Sin\,qx}{p^2+x^2-r^2+2rxi}\,dx=\pi\frac{e^{-pr}-e^{pr}}{p}\,[r>p],=\frac{2\pi}{p}e^{-pr}\,[r<p]$ (IV, 318).

18) $\int \frac{(p+r^2+x^2)\,2x\,Sin\,2qx-r(p^2-r^2-x^2)(e^{2qr}-e^{-2qr})}{e^{2qr}+2\,Cos\,2qx+e^{-2qr}}\,\frac{dx}{\{x^2+(p-r)^2\}\{x^2+(p+r)^2\}}=$
$=\pi\,[r>p],=\frac{2\pi}{e^{2pq}+1}\,[r<p]$ (IV, 318).

1) $\int Sin\,px\,\frac{dx}{x}=\frac{\pi}{2}-Si\,(p)$ (VIII, 289*).

2) $\int Sin\,\{p\,(x-1)\}\,\frac{dx}{x}=Ci\,(p)\,.\,Sin\,p+Cos\,p\,.\left\{\frac{1}{2}\pi-Si\,(p)\right\}$ (IV, 318).

3) $\int Sin\left\{p\left(x-\frac{1}{x}\right)\right\}.\left(x-\frac{1}{x}\right)dx\,\sqrt{x}=e^{-2p}\sqrt{\frac{\pi}{2p}}$ (IV, 318).

4) $\int Sin\left\{p\left(x-\frac{1}{x}\right)\right\}\frac{x-1}{x}\,\frac{dx}{\sqrt{x}}=e^{-2p}\sqrt{\frac{\pi}{2p}}$ (VIII, 446).

5) $\int Cos\,px\,\frac{dx}{x}=-Ci\,(p)$ (VIII, 289*).

6) $\int Cos\,\{p\,(x-1)\}\,\frac{dx}{x}=-Ci\,(p)\,.Cos\,p+Sin\,p\,\left\{\frac{1}{2}\pi-Si\,(p)\right\}$ (IV, 320).

7) $\int Cos\left\{p\left(x-\frac{1}{x}\right)\right\}.\left(x+\frac{1}{x}\right)dx\,\sqrt{x}=e^{-2p}\sqrt{\frac{\pi}{2p}}$ (IV, 320).

8) $\int Cos\left\{p\left(x-\frac{1}{x}\right)\right\}\frac{x+1}{x}\,\frac{dx}{\sqrt{x}}=e^{-2p}\sqrt{\frac{\pi}{2p}}$ (VIII, 446).

9) $\int Sin\left\{p\left(x-\frac{1}{x}\right)\right\}\frac{4+x+\frac{1}{x}}{\left(x+\frac{1}{x}\right)^2}\left(\sqrt{x}-\frac{1}{\sqrt{x}}\right)\frac{dx}{x}=e^{-2p}\sqrt{2p\,\pi}$ (IV, 319).

10) $\int Cos \left\{p\left(x-\frac{1}{x}\right)\right\} \frac{4-x-\frac{1}{x}}{\left(x+\frac{1}{x}\right)^2}\left(\sqrt{x}+\frac{1}{\sqrt{x}}\right)\frac{dx}{x}=e^{-2p}\sqrt{2p\pi}$ (IV, 321).

11) $\int Sin \left\{p\left(x-\frac{1}{x}\right)\right\} \frac{\{x+1-(x-1)i\}^{-a}-\{x+1+(x-1)i\}^{-a}}{2i}\left(x+\frac{1}{x}\right)x^{\frac{1}{2}a-1}\,dx=$

$$=\frac{\pi p^{\frac{1}{2}a-1}e^{-2p}}{2^{\frac{1}{2}a+1}\Gamma\left(\frac{1}{2}a\right)}\text{ (VIII, 445).}$$

12) $\int Cos \left\{p\left(x-\frac{1}{x}\right)\right\} \frac{\{x+1-(x-1)i\}^{-a}+\{x+1+(x-1)i\}^{-a}}{2}\left(x+\frac{1}{x}\right)x^{\frac{1}{2}a-1}\,dx=$

$$=\frac{\pi p^{\frac{1}{2}a-1}e^{-2p}}{2^{\frac{1}{2}a+1}\Gamma\left(\frac{1}{2}a\right)}\text{ (VIII, 445).}$$

13) $\int Sin \left\{p\left(x^2-\frac{1}{x^2}\right)\right\}.\left(x-\frac{1}{x}\right)\frac{dx}{x}=\frac{1}{2}e^{-2p}\sqrt{\frac{\pi}{2p}}$ V. T. 203, N. 4.

14) $\int Cos \left\{p\left(x^2-\frac{1}{x^2}\right)\right\}.\left(x+\frac{1}{x}\right)\frac{dx}{x}=\frac{1}{2}e^{-2p}\sqrt{\frac{\pi}{2p}}$ V. T. 203, N. 8.

15) $\int Sin\, p x \frac{dx}{x^{2a}}=\frac{(-1)^a}{1^{2a-1/1}}p^{2a-1}\left(A+lp-\sum_1^{2a-1}\frac{1}{n}\right)-\frac{1}{2}\sum_1^{a-1}\frac{(-1)^n}{1^{2n-1/1}}\frac{p^{2n-1}}{a-n}-$

$$-\sum_0^{\infty}\frac{(-1)^{a+n}}{1^{2a+2n+1/1}}\frac{p^{2a+2n}}{2n+1}\text{ (IV, 347*).}$$

16) $\int Cos\, p x \frac{dx}{x^{2a+1}}=\frac{(-1)^{a-1}}{1^{2a/1}}p^{2a}\left(A+lp-\sum_1^{2a}\frac{1}{n}\right)+\frac{1}{2}\sum_0^{a-1}\frac{(-1)^n}{1^{2n/1}}\frac{p^{2n}}{a-n}-\sum_1^{\infty}\frac{(-1)^{a+n}}{1^{2a+2n/1}}\frac{p^{2a+2n}}{2n}$

(IV, 347*).

1) $\int x\, Tang\, x\, dx=-\frac{\pi}{8}l2+\frac{1}{2}\sum_0^{\infty}\frac{(-1)^n}{(2n+1)^2}$ (IV, 324).

2) $\int x\, Cot\, x\, dx=\frac{\pi}{8}l2+\frac{1}{2}\sum_0^{\infty}\frac{(-1)^n}{(2n+1)^2}$ V. T. 285, N. 1.

3) $\int x\, Tang^2\, x\, dx=\frac{1}{4}\pi-\frac{1}{32}\pi^2-\frac{1}{2}l2$ V. T. 204, N. 9.

4) $\int x^a\, Tang\, x\, dx = -\frac{1}{2}\left(\frac{\pi}{4}\right)^a l2 + \frac{1^{a/1}}{2^a} Cos\,\frac{1}{2}a\pi . \sum_1^\infty \frac{(-1)^{n-1}}{n^{a+1}} + \frac{1}{2^a}\sum_1^\infty (-1)^{n-1}$
$\left\{a^{2n-1/-1}\left(\frac{\pi}{2}\right)^{a-2n+1}\sum_0^\infty \frac{(-1)^m}{(2m+1)^{2n}} + a^{2n/-1}\left(\frac{\pi}{2}\right)^{a-2n}\sum_0^\infty \frac{(-1)^{m+1}}{(2m)^{2n+1}}\right\}$ (IV, 325*).

5) $\int x^a\, Cot\, x\, dx = \frac{1}{2}\left(\frac{\pi}{4}\right)^a l2 + \frac{1^{a/1}}{2^a} Cos\,\frac{1}{2}a\pi . \sum_1^\infty \frac{(-1)^{n-1}}{n^{a+1}} + \frac{1}{2^a}\sum_1^\infty (-1)^{n-1}$
$\left\{a^{2n-1/-1}\left(\frac{\pi}{2}\right)^{a-2n+1}\sum_0^\infty \frac{(-1)^m}{(2m+1)^{2n}} + a^{2n/-1}\left(\frac{\pi}{2}\right)^{a-2n}\sum_0^\infty \frac{(-1)^{m+1}}{(2m)^{2n+1}}\right\}$ (IV, 325*).

6) $\int x\cdot\, Cot\, x\, dx = \left(\frac{\pi}{4}\right)^p \left\{1 - \sum_1^\infty \frac{2}{p+2m}\sum_1^\infty \frac{1}{(4n)^{2m}}\right\}$ (IV, 325*).

7) $\int x\, Tang^3 x\, dx = \frac{\pi}{4} - \frac{1}{2} + \frac{\pi}{8} l2 - \frac{1}{2}\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 231, N. 21.

8) $\int \left(\frac{\pi}{4} - x\, Tg\, x\right) Tg\, x\, dx = \frac{1}{2} l2 + \frac{1}{32}\pi^2 - \frac{\pi}{4} + \frac{\pi}{8} l2$ V. T. 232, N. 9.

9) $\int \frac{x}{Cos^2 x} dx = \frac{1}{4}\pi - \frac{1}{2} l2$ (VIII, 215).

10) $\int \frac{x^2}{Sin^2 x} dx = \frac{1}{4}\pi\, l2 - \frac{1}{16}\pi^2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 204, N. 2.

11) $\int x\, Sin\, x \frac{dx}{Cos^3 x} = \frac{\pi}{4} - \frac{1}{2}$ V. T. 229, N. 6.

12) $\int x^2\, Sin^2 x \frac{dx}{Cos^4 x} = \frac{1}{3}\left\{-\frac{\pi}{4} l2 - \frac{\pi}{2} + \frac{1}{16}\pi^2 + 1 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}\right\}$ V. T. 229, N. 9.

13) $\int \frac{x^2}{Cos^2 x} Tg\, x\, dx = \frac{1}{2} l2 - \frac{1}{4}\pi + \frac{1}{16}\pi^2$ V. T. 204, N. 3.

14) $\int \frac{x^{p+1}}{Sin^2 x} dx = -\left(\frac{1}{4}\pi\right)^{p+1} + (p+1)\left(\frac{\pi}{4}\right)^p \left\{1 - \sum_1^\infty \frac{2}{p+2m}\sum_1^\infty \frac{1}{(4n)^{2m}}\right\}$ V. T. 204, N. 6.

15) $\int \frac{x\, Sin^{q-1} x}{Cos^{q+1} x} dx = \frac{\pi}{4q} + \frac{1}{q}\sum_0^\infty \frac{(-1)^{n-1}}{q+2n+1}$ V. T. 34, N. 1.

16) $\int \frac{x\, Sin^{2a} x}{Cos^{2a+2} x} dx = \frac{1}{2(2a+1)}\left\{\frac{\pi}{2} + (-1)^{a-1} l2 + \sum_0^{a-1} \frac{(-1)^{n-1}}{a-n}\right\}$ V. T. 34, N. 3.

17) $\int \frac{x\, Sin^{2a-1} x}{Cos^{2a+1} x} dx = \frac{\pi}{8a}(1 - Cos\, a\pi) + \frac{1}{2a}\sum_0^{a-1} \frac{(-1)^{n-1}}{2a-2n-1}$ V. T. 34, N. 2.

18) $\int \left(\frac{\pi}{4} - x\right)\frac{dx}{Cos\, 2x} = \frac{1}{2}\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 232, N. 4.

19) $\int\left(\frac{\pi}{4}-x\right)\frac{Tg\,x\,dx}{Cos\,2x}=-\frac{\pi}{8}\,l2+\frac{1}{2}\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 232, N. 5.

20) $\int\left(\frac{\pi}{4}-x\,Tang\,x\right)\frac{dx}{Cos\,2x}=\frac{\pi}{8}\,l2+\frac{1}{2}\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 232, N. 6.

21) $\int\left(\frac{\pi}{4}-x\,Tang^2\,x\right)\frac{dx}{Cos\,2x}=\frac{\pi}{4}-\frac{1}{2}+\frac{\pi}{8}\,l2+\frac{1}{2}\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 232, N. 7.

22) $\int\frac{(x-\frac{1}{2}\pi)\,Tg^2\,x+x}{Cos\,2x}\,\frac{dx}{Tg\,x}=\frac{1}{4}\pi\,l2$ V. T. 232, N. 1.

23) $\int\frac{Cos\,x-Sin\,x}{Sin\,x+Cos\,x}\,x\,dx=\frac{\pi}{4}\,l2-\frac{1}{2}\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 235, N. 21.

24) $\int\frac{x}{(Cos\,x+p\,Sin\,x)^2}\,dx=\frac{1}{1+p^2}\,l\frac{1+p}{\sqrt{2}}+\frac{\pi}{4}\,\frac{1-p}{(1+p)(1+p^2)}$ (IV, 323).

25) $\int\frac{x\,Cos\,2x}{(1+Sin\,x\,.\,Cos\,x)^2}\,dx=\pi\,\frac{2-\sqrt{3}}{6\sqrt{3}}$ (IV, 323).

26) $\int\frac{x\,Cos\,2x}{(1-Sin\,x\,.\,Cos\,x)^2}\,dx=\pi\,\frac{3\sqrt{3}-4}{6\sqrt{3}}$ (IV, 323).

27) $\int\frac{x\,Sin\,4x}{(1-Sin^2x\,.\,Cos^2x)^2}\,dx=\pi\,\frac{2-\sqrt{3}}{3}$ V. T. 204, N. 25, 26.

28) $\int\frac{x}{Sin\,x+Cos\,x}\,\frac{dx}{Cos\,x}=\frac{1}{8}\pi\,l2$ V. T. 287, N. 1.

29) $\int\frac{x}{Sin\,x+Cos\,x}\,\frac{dx}{Sin\,x}=-\frac{\pi}{8}\,l2+\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 235, N. 11.

30) $\int\frac{Sin\,x}{Sin\,x+Cos\,x}\,\frac{x\,dx}{Cos^2x}=-\frac{\pi}{8}\,l2+\frac{\pi}{4}-\frac{1}{2}\,l2$ V. T. 231, N. 18.

31) $\int\frac{1+2\,Cos\,\lambda\,.\,Sin\,2x\,.\,Sin^2x}{(1+Cos\,\lambda\,.\,Sin\,2x)^2}\,\frac{x}{Cos^2x}\,dx=\frac{\pi}{4(1+Cos\,\lambda)}+\frac{1}{2}\lambda\,Cot\,\lambda-l\left(2\,Cos\,\frac{1}{2}\lambda\right)$
V. T. 36, N. 1.

32) $\int\frac{x\,Tg^2\,x}{\sqrt{Cos\,2x}}\,dx=\sqrt{2}\,.\left\{F'\left(Sin\frac{\pi}{4}\right)-E'\left(Sin\frac{\pi}{4}\right)\right\}$ V. T. 38, N. 1.

33) $\int\frac{x}{Sin\,x\,.\sqrt{Cos\,2x}}\,dx=\frac{1}{2}\pi\,l(1+\sqrt{2})$ V. T. 244, N. 11.

34) $\int\frac{\sqrt{Tg\,x}-\sqrt{Cot\,x}}{Sin\,2x\,.}\,x\,dx=\frac{1}{2}\pi(1-\sqrt{2})$ V. T. 38, N. 2.

F. Alg. rat. ent.;
Circ. Dir. ent.

TABLE 205.

Lim. 0 et $\frac{\pi}{2}$.

1) $\int x \, Cot x \, dx = \frac{1}{2}\pi l 2$ (VIII, 612).

2) $\int x \, Tg x \, dx = \infty$ V. T. 306, N. 1.

3) $\int x \, Cos^p x . Tg x \, dx = \frac{\pi}{p . 2^{p+1}} \frac{\Gamma(p+1)}{\{\Gamma(\frac{1}{2}p+1)\}^2}$ V. T. 41, N. 3.

4) $\int x \, Cos^{q-1} x . Sin \{(q+1)x\} \, dx = \frac{\pi}{q . 2^{q+1}}$ (VIII, 430).

5) $\int x \, Cos^q x . Sin \{(q+2a)x\} \, dx = -\frac{\pi \, Cos \, a\pi}{2^{q+2}} \frac{1^{a-1/1}}{q^{a-1/1}}$ (VIII, 430).

6) $\int x \, Cos^{p-1} x . Sin \, q x \, dx = \frac{\pi}{2^{p+1}} \Gamma(p) \frac{Z'\left(\frac{p+q+1}{2}\right) - Z'\left(\frac{p-q+1}{2}\right)}{\Gamma\left(\frac{p+q+1}{2}\right) . \Gamma\left(\frac{p-q+1}{2}\right)}$ (IV, 324).

7) $\int x^p \, Cot x \, dx = \left(\frac{\pi}{2}\right)^p \left\{1 - \sum_1^\infty \frac{2}{p+2m} \sum_1^\infty \frac{1}{(2n)^{2m}}\right\}$ (IV, 325).

8) $\int x^a \, Cot x \, dx = \left(\frac{\pi}{2}\right)^a l 2 + Cos \frac{1}{2} a \pi . 1^{a/1} \sum_1^\infty \left\{\frac{1}{n^{a+1}} + \frac{(-1)^n}{n^{a+1}}\right\} + 2 \sum_1^\infty (-1)^n (a-1)^{2n-1/-1}$
$\left(\frac{\pi}{2}\right)^{a-2n} \sum_1^\infty \frac{(-1)^{n-1}}{(2m)^{2n+1}}$ (IV, 326).

9) $\int x \, Sin (p \, Tg x) \, dx = \frac{1}{4} \pi e^{-p} \{A + l 2 p - e^{2p} Ei(-2p)\}$ V. T. 446, N. 2.

10) $\int x \, Cos (p \, Tg x) . Tg x \, dx = -\frac{1}{4} \pi e^{-p} \{A + l 2 p + e^{2p} Ei(-2p)\}$ V. T. 446, N. 4.

F. Alg. rat. ent.;
Circ. Dir. en dén. monôme.

TABLE 206.

Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{x}{Sin x} \, dx = 2 \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ (IV, 325).

2) $\int \frac{x^a}{Sin x} \, dx = Cos \frac{1}{2} a \pi . 1^{a/1} \sum_1^\infty \left\{\frac{1}{n^{a+1}} + \frac{(-1)^{n-1}}{n^{a+1}}\right\} + 2 \sum_1^\infty (-1)^{n-1} a^{2n-1/-1} \left(\frac{\pi}{2}\right)^{a-2n-1}$
$\sum_1^\infty \frac{(-1)^{m-1}}{(2m-1)^{2n}}$ (IV, 325).

3) $\int \frac{x^p}{Sin x} \, dx = \left(\frac{\pi}{2}\right)^p \left\{1 + \sum_1^\infty \frac{1}{2^{2m-2}} \frac{2^{2m-1}-1}{p+2m} \sum_1^\infty \frac{1}{(4n^2)^m}\right\}$ (IV, 325).

4) $\int \frac{x \, Cos\, x}{Sin\, x} dx = \frac{1}{2} \pi \, l2$ (VIII, 612).

5) $\int \frac{x^2}{Sin^2 x} dx = \pi \, l2$ (VIII, 589).

6) $\int \frac{x^{p+1}}{Sin^2 x} dx = (p+1)\left(\frac{\pi}{2}\right)^p \left\{1 - \sum_1^\infty \frac{2}{p+2m} \sum_1^\infty \frac{1}{(4n^2)^m}\right\}$ V. T. 205, N. 7.

7) $\int \frac{x^2 \, Cos\, x}{Sin^2 x} dx = -\frac{1}{4}\pi^2 + 4 \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 206, N. 1.

8) $\int \frac{x^3 \, Cos\, x}{Sin^3 x} dx = -\frac{1}{16}\pi^3 + \frac{3}{2}\pi \, l2$ V. T. 206, N. 5.

9) $\int \frac{1 - x \, Cot\, x}{Sin^2 x} dx = \frac{1}{4}\pi$ (IV, 326).

10) $\int \frac{4x^2 \, Cos\, x + (2\pi - x)\, x}{Sin\, x} dx = \pi^2 \, l2$ (IV, 326).

11) $\int \frac{x \, Sin^p x}{Tg\, x} dx = \frac{\pi}{2p} - \frac{2^{p-1}}{p} \frac{\left\{\Gamma\left(\frac{p+1}{2}\right)\right\}^2}{\Gamma(p+1)}$ V. T. 40, N. 3.

12) $\int \frac{x}{Tg\, x . Cos\, 2x} dx = \frac{1}{4}\pi \, l2$ V. T. 250, N. 6.

13) $\int \frac{x}{Tg^p x . Sin\, 2x} dx = \frac{\pi}{4p} Sec \frac{1}{2} p\pi \; [p<1]$ V. T. 45, N. 19.

14) $\int Sin(q \, Cot\, x) \frac{x}{Sin^2 x} dx = \frac{e^{-q} - 1}{2q}\pi$ V. T. 347, N. 1.

15) $\int Cos(q \, Tg\, x) \frac{x}{Sin\, 2x} dx = -\frac{\pi}{4} Ei(-q)$ V. T. 445, N. 1.

F. Alg. rat. ent.; Circ. Dir. en dén. binôme. TABLE 207. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{x \, Sin\, x}{Cos^2 \lambda - Sin^2 x} dx = -2 \, Cosec\, \lambda . \sum_0^\infty \frac{Sin\{(2n+1)\lambda\}}{(2n+1)^2}$ (IV, 327).

2) $\int \frac{x \, Sin\, 2x}{1 + q \, Sin^2 x} dx = \frac{\pi}{q} \, l \frac{2\sqrt{1+q}}{1+\sqrt{1+q}}$ (VIII, 589).

3) $\int \frac{x^2}{1 - Cos\, x} dx = \pi \, l2 - \frac{1}{4}\pi^2 + 4 \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 204, N. 2.

4) $\int \frac{x^{p+1}}{1 - Cos\, x} dx = -\left(\frac{\pi}{2}\right)^{p+1} + (p+1)\left(\frac{\pi}{2}\right)^p \left\{2 - \sum_1^\infty \frac{4}{p+2m} \sum_1^\infty \frac{1}{(4n)^{2m}}\right\}$ V. T. 204, N. 6.

5) $\int \frac{x^a \, Sin\, x}{Cos\, x + Cos\, \lambda}\, dx = -\left(\frac{\pi}{2}\right)^a l(2\, Cos\, \lambda) + 2 \,.\, 1^{a/1} .\, Cos \frac{1}{2} a\pi .\, \sum_1^\infty (-1)^{n-1} \frac{Cos\, n\lambda}{n^{a+1}} + 2 \sum_1^\infty (-1)^{n-1}$
$\left\{ Cos\{(2n-1)\lambda\} .\, \sum_1^\infty (-1)^{m-1} \frac{a^{2m-1/-1}}{(2n-1)^{2m}} \left(\frac{\pi}{2}\right)^{a+1-2m} + Cos\, 2n\lambda .\, \sum_1^\infty (-1)^{m-1} \frac{a^{2m/-1}}{(2n)^{2m+1}} \left(\frac{\pi}{2}\right)^{a-2m} \right\}$ (IV, 327).

6) $\int \frac{x^a \, Sin\, x}{Cos\, x - Cos\, \lambda}\, dx = -\left(\frac{\pi}{2}\right)^a l(2\, Cos\, \lambda) - 2 \,.\, 1^{a/1} .\, Cos \frac{1}{2} a\pi .\, \sum_1^\infty \frac{Cos\, n\lambda}{n^{a+1}} - 2 \sum_1^\infty (-1)^{n-1}$
$\left\{ Cos\{(2n-1)\lambda\} .\, \sum_1^\infty (-1)^{m-1} \frac{a^{2m-1/-1}}{(2n-1)^{2m}} \left(\frac{\pi}{2}\right)^{a+1-2m} - Cos\, 2n\lambda .\, \sum_1^\infty (-1)^{m-1} \frac{a^{2m/-1}}{(2n)^{2m+1}} \left(\frac{\pi}{2}\right)^{a-2m} \right\}$ (IV, 327).

7) $\int \frac{x^a \, Sin\, x}{Cos\, x \pm q}\, dx = -2\, Cos \frac{1}{2} a\pi .\, 1^{a/1} \sum_1^\infty \frac{(\mp c)^n}{n^{a+1}} - 2 \sum_1^\infty \left\{ c^{2n} \sum_0^\infty \binom{a}{2m} (-1)^m \left(\frac{\pi}{2}\right)^{a-2m} \frac{1}{(2n)^{2m+1}} + \right.$
$\left. + c^{2n-1} \sum_0^\infty \binom{a}{2m+1} (-1)^m \left(\frac{\pi}{2}\right)^{a-2m-1} \frac{1}{(2n+1)^{2m+2}} \right\}$ [où $c = q - \sqrt{q^2 - 1}$] (IV, 327).

8) $\int \frac{Cos\, x - Sin\, x}{Sin\, x + Cos\, x}\, x\, dx = \frac{\pi}{4} l2 - \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 250, N. 12.

9) $\int \frac{Sin\, x + Cos\, x}{Cos\, x - Sin\, x}\, x\, dx = -\frac{\pi}{4} l2 - \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 250, N. 13.

10) $\int \frac{x\, Sin\, 2x}{1 + q\, Cos^2 x}\, dx = \frac{\pi}{q} l \frac{1 + \sqrt{1+q}}{2}$ (VIII, 589).

11) $\int \frac{x\, Tg\, x}{p^2\, Sin^2 x + q^2\, Cos^2 x}\, dx = \frac{\pi}{2p^2} l \frac{q}{q+p}$ V. T. 308, N. 17.

F. Alg. rat. ent.; Circ. Dir. en dén. d'autre forme. TABLE 208. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{x\, Cos\, x}{(1 + Cos\, \lambda .\, Sin\, x)^2}\, dx = 2\lambda\, Cosec\, 2\lambda - \frac{1}{2\, Cos\, \lambda} \frac{\pi}{1 + Cos\, \lambda}$ (IV, 329).

2) $\int \frac{x\, Cos\, 2x}{(1 + Sin\, x .\, Cos\, x)^2}\, dx = \frac{2}{9}\pi\sqrt{3} - \frac{1}{2}\pi$ (IV, 329).

3) $\int \frac{x\, Cos\, 2x}{(1 - Sin\, x .\, Cos\, x)^2}\, dx = \frac{1}{2}\pi - \frac{4}{9}\pi\sqrt{3}$ (IV, 329).

4) $\int \frac{x\, Sin\, 2x}{(1 - Cos^2 \lambda .\, Sin^2 x)^2}\, dx = 2\pi\, Cosec^2\, 2\lambda .(1 - Sin\, \lambda)$ V. T. 208, N. 1.

5) $\int \frac{x}{(Sin\, x \pm q\, Cos\, x)^2}\, dx = \pm \frac{\pi}{2} \frac{q}{1+q^2} - \frac{1}{1+q^2}\, l q$ V. T. 47, N. 1, 2.

6) $\int \frac{x\, Sin\, x}{(p+q\, Cos\, x)^2}\, dx = \frac{\pi}{2pq} - \frac{1}{q\sqrt{p^2-q^2}}\, Arccos \frac{q}{p}\, [q<p], = \frac{\pi}{2pq} + \frac{1}{q\sqrt{q^2-p^2}}\, l \frac{p}{q+\sqrt{q^2-p^2}}$
$[q>p]$ (IV, 329).

7) $\int \frac{x\, Cos\, x}{(s+Sin\, x)^2}\, dx = \frac{1}{\sqrt{1-s^2}}\, l \frac{1+\sqrt{1-s^2}}{s} - \frac{\pi}{2(s+1)}\, [s^2<1], = \frac{1}{\sqrt{s^2-1}}\, Arccos \frac{1}{s} -$
$- \frac{\pi}{2(1+s)}\, [s^2>1]$ (VIII, 589).

8) $\int \frac{x\, Sin\, x}{(p+q\, Cos\, x)^3}\, dx = \frac{\pi}{4p^2 q} + \frac{1}{p^2-q^2}\left\{\frac{1}{2p} - \frac{p}{2q\sqrt{p^2-q^2}}\, Arccos \frac{q}{p}\right\}\, [p^2>q^2], = \frac{\pi}{4p^2 q} -$
$- \frac{1}{q^2-p^2}\left\{\frac{1}{2p} + \frac{p}{2q\sqrt{q^2-p^2}}\, l \frac{q+\sqrt{q^2-p^2}}{p}\right\}\, [p^2<q^2]$ (VIII, 587).

9) $\int \frac{x\, Sin\, 4x}{(1-Sin^2 x\, Cos^2 x)^2}\, dx = \left(1-\frac{2}{\sqrt{3}}\right)\pi$ V. T. 208, N. 2, 3.

10) $\int \frac{x\, Sin\, 2x}{(p^2 Sin^2 x + q^2 Cos^2 x)^2}\, dx = \frac{\pi}{2p^2 q(p+q)}$ V. T. 47, N. 13.

11) $\int \frac{x\, Sin\, 2x}{(p^2 Sin^2 x + q^2 Cos^2 x)^3}\, dx = \frac{\pi}{8p^4 q^3} \frac{p^2+pq+2q^2}{p+q}$ V. T. 48, N. 13.

12) $\int \frac{x\, Sin\, 2x}{(p^2 Sin^2 x + q^2 Cos^2 x)^4}\, dx = \frac{\pi}{48 p^6 q^5} \frac{3p^4+3p^3 q+5p^2 q^2+5pq^3+8q^4}{p+q}$ V. T. 48, N. 17.

13) $\int \frac{x\, Sin\, 2x}{(p^2 Sin^2 x + q^2 Cos^2 x)^5}\, dx = \frac{\pi}{128 p^8 q^7} \frac{5p^6+5p^5 q+8p^4 q^2+8p^3 q^3+11p^2 q^4+11pq^5+16q^6}{p+q}$
V. T. 48, N. 21.

14) $\int \frac{Cos^2 \lambda + Sin^2 x}{(Cos^2 \lambda - Sin^2 x)^2}\, x^2\, Cos\, x\, dx = -\frac{\pi^2}{4 Sin^2 \lambda} + \frac{4}{Sin\, \lambda} \sum_0^\infty \frac{Sin\{(2n+1)\lambda\}}{(2n+1)^2}$ V. T. 207, N. 1.

15) $\int \frac{x}{(Tg^p x + Cot^p x)^q}\, dx = \frac{\sqrt{\pi^3}}{2^{2q+2} p} \frac{\Gamma(q)}{\Gamma(q+\frac{1}{2})}$ (VIII, 422).

16) $\int \frac{x}{Sin\, x + Cos\, x} \frac{dx}{Sin\, x} = \frac{\pi}{4}\, l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 250, N. 1.

17) $\int \frac{x}{Cos\, x - Sin\, x} \frac{dx}{Sin\, x} = \frac{\pi}{4}\, l2 - \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 250, N. 2.

18) $\int \frac{x}{p^4 - q^4\, Tg^4 x} \frac{dx}{Sin\, 2x} = \frac{\pi}{16 p^4}\, l \frac{(p+q)^2 (p^2+q^2)}{q^4}$ V. T. 248, N. 14.

19) $\int \frac{Sin\, x}{p^4 - q^4\, Tg^4\, x} \frac{x}{Cos^2\, x} dx = \frac{\pi}{8 p^2 q^2} l \frac{p^2+q^2}{(p+q)^2}$ V. T. 248, N. 13.

20) $\int \frac{x}{p^2\, Sin^2\, x + q^2\, Cos^2\, x} \frac{dx}{Tg\, x} = \frac{\pi}{2 q^2} l \frac{p}{p+q}$ V. T. 308, N. 17.

21) $\int \frac{Sin\, x\, .\, Cos\, x}{1 - Sin^2 \lambda\, .\, Cos^2\, x} \frac{x}{1 - Sin^2 \mu\, .\, Cos^2\, x} dx = \frac{\pi}{Cos^2 \lambda - Cos^2 \mu} l \left(Cos \frac{1}{2} \lambda\, .\, Sec \frac{1}{2} \mu \right)$ (IV, 330).

22) $\int \frac{x\, Sin\, 2x}{1 + p\, Sin^2\, x} \frac{dx}{1 + q\, Sin^2\, x} = \frac{\pi}{p-q} l \left\{ \frac{1+\sqrt{1+q}}{1+\sqrt{1+p}} . \frac{\sqrt{1+p}}{\sqrt{1+q}} \right\}$ V. T. 207, N. 2.

23) $\int \frac{x\, Sin\, 2x}{1 + p\, Cos^2\, x} \frac{dx}{1 + q\, Cos^2\, x} = \frac{\pi}{p-q} l \frac{1+\sqrt{1+p}}{1+\sqrt{1+q}}$ V. T. 207, N. 10.

24) $\int \frac{x\, Sin\, 2x}{1 + p\, Sin^2\, x} \frac{dx}{1 + q\, Cos^2\, x} = \frac{\pi}{p + pq + q} l \frac{\{1+\sqrt{1+q}\}\sqrt{1+p}}{1+\sqrt{1+p}}$ V. T. 207, N. 2, 10.

25) $\int \frac{Tg^2\, x}{(p^2 + q^2\, Tg^2\, x)^2} \frac{x}{Sin\, 2x} dx = \frac{\pi}{8 p q^2 (p+q)}$ (IV, 330*).

26) $\int \frac{x}{(Tg\, x + Cot\, x)^2} \frac{dx}{Tg\, 2x\, .\, Sin\, 2x} = -\frac{\pi}{128}$ V. T. 48, N. 4.

27) $\int \frac{x}{(Tg^p\, x + Cot^p\, x)^q} \frac{dx}{Sin\, 2x} = \frac{\sqrt{\pi^3}}{2^{2q+3} p} \frac{\Gamma(q)}{\Gamma(q+\frac{1}{2})}$ (VIII, 422).

28) $\int \left[\frac{p^2\, x\, Sin\, 2px}{Cos\, p\pi - Cos\, 2px} - \frac{(1-p^2)x - (1-p)\frac{1}{2}\pi}{Cos\, p\pi + Cos\{(1-p)2x\}} Sin\{2(1-p)x\} \right] dx = \frac{\pi}{4} l \{2(1 + Cos\, p\pi)\}$
(IV, 330).

29) $\int \frac{x\, Cos\, x}{1 + 2p\, Sin\, x + p^2} dx = \frac{\pi}{2p} l (1+p) - \frac{1}{2p} \sum_0^\infty \frac{1}{2n+1} \frac{2^{n/2}}{3^{n/2}} \left(\frac{2p}{1+p^2} \right)^{2n+1}$ $[p^2 \leqq 1]$ (IV, 328).

30) $\int \frac{x\, Sin\, x}{(1 \pm 2r\, Cos\, x + r^2)^2} dx = \pm \frac{1}{r} \left\{ \frac{\pi}{4(1+r^2)} - \frac{1}{1-r^2} Arctg \frac{1 \mp r}{1 \pm r} \right\}$ (VIII, 587).

F. Alg. rat. ent.; Circ Dir. sous forme irrat. ent.; $[p^2 < 1]$. TABLE 209. Lim. 0 et $\frac{\pi}{2}$.

1) $\int x\, Sin\, x\, .\, Cos\, x\, dx \sqrt{1 - p^2\, Sin^2\, x} = \frac{1}{9p^2} \left[(4 - 2p^2) E'(p) - (1-p^2) F'(p) - \frac{3}{2} \pi \sqrt{1-p^2}^3 \right]$.

2) $\int x\, Sin\, x\, .\, Cos^3\, x\, dx \sqrt{1 - p^2\, Sin^2\, x} = \frac{1}{225 p^4} [15 \pi \sqrt{1-p^2}^5 + (1 - 13p^2)(1-p^2) F'(p) -$

$- (31 - 81 p^2 + 26 p^4) E'(p)]$.

3) $\int x \, Sin\, x \,.\, Cos^5 x\, dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{11025 p^6} [-420\pi \sqrt{1-p^2}^7 + (62-13p^2-409p^4)$
$(1-p^2) F'(p) + 2(389-1343p^2+1723p^4-409p^6) E'(p)]$.

4) $\int x \, Sin\, x \,.\, Cos^7 x\, dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{99225 p^8} [2520\pi \sqrt{1-p^2}^9 - (652-1815p^2+774p^4+$
$+2629p^6)(1-p^2) F'(p) - (4388-19279p^2+33012p^4-27859p^6+5258p^8) E'(p)]$.

5) $\int x \, Sin^3 x \,.\, Cos\, x\, dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{225 p^4} [-15(2+3p^2)\frac{\pi}{2}\sqrt{1-p^2}^3 - (1+12p^2)(1-p^2)$
$F'(p) + (31+19p^2-24p^4) E'(p)]$.

6) $\int x \, Sin^3 x \,.\, Cos^3 x\, dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{11025 p^6} [105(4+3p^2)\pi \sqrt{1-p^2}^5 - 2(31-31p^2+114p^4)$
$(1-p^2) F'(p) - (778-1167p^2-523p^4+456p^6) E'(p)]$.

7) $\int x \, Sin^3 x \,.\, Cos^5 x\, dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{99225 p^8} [-1260(2+p^2)\pi \sqrt{1-p^2}^7 + (652-1257p^2+$
$+657p^4-1052p^6)(1-p^2) F'(p) + (4388-12277p^2+8838p^4+3155p^6-2104p^8) E'(p)]$.

8) $\int x \, Sin^5 x \,.\, Cos\, x\, dx \sqrt{1-p^2 Sin x} = \frac{1}{11025 p^6} [-105(8+12p^2+15p^4)\frac{\pi}{2}\sqrt{1-p^2}^3 + (62-111p^2-$
$-360p^4)(1-p^2) F'(p) + 2(389+176p^2+204p^4-360p^6) E'(p)]$.

9) $\int x \, Sin^5 x \,.\, Cos^3 x\, dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{99225 p^8} [315(8+8p^2+5p^4)\pi \sqrt{1-p^2}^5 -$
$-(652-699p^2+99p^4+1000p^6)(1-p^2) F'(p) - (4388-5275p^2-1665p^4-$
$-1552p^6+2000p^8) E'(p)]$.

10) $\int x \, Sin^7 x \,.\, Cos\, x\, dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{99225 p^8} [-315(16+24p^2+30p^4+35p^6)\frac{\pi}{2}\sqrt{1-p^2}^3 +$
$+(652-141p^2-900p^4-2240p^6)(1-p^2) F'(p) + (4388+1727p^2+1503p^4+2120p^6-$
$-4480p^8) E'(p)]$. Sur 1) à 10) voyez M, D. 16, 28.

11) $\int x \, Sin\, x \,.\, Cos\, x\, dx \sqrt{1-p^2 Cos^2 x} = \frac{1}{9p^2}\left[\frac{3}{2}\pi - (2-p^2)\, 2E'(p) + (1-p^2) F'(p)\right]$ (VIII, 588).

12) $\int x \, Sin\, x \,.\, Cos^3 x\, dx \sqrt{1-p^2 Cos^2 x} = \frac{1}{225 p^4} [15\pi + (1+12p^2)(1-p^2) F'(p) -$
$(31+19p^2-24p^4) E'(p)]$.

13) $\int x\, Sin\, x\,.\, Cos^5 x\, dx \sqrt{1-p^2\, Cos^2 x} = \frac{1}{11025\, p^6}[420\pi-(62-111p^2-360p^4)(1-p^2)F'(p)-$
$-2(389+176p^2+204p^4-360p^6)E'(p)]$.

14) $\int x\, Sin\, x\,.\, Cos^7 x\, dx \sqrt{1-p^2\, Cos^2 x} = \frac{1}{99225\, p^8}[280\pi-(652-141p^2-900p^4-2240p^6)$
$(1-p^2)F'(p)-(4388+1727p^2+1503p^4+2120p^6-4480p^8)E'(p)]$.

15) $\int x\, Sin^3 x\,.\, Cos\, x\, dx \sqrt{1-p^2\, Cos^2 x} = \frac{1}{225\, p^4}[-15(2-5p^2)\frac{\pi}{2}-(1-13p^2)(1-p^2)F'(p)+$
$+(31-81p^2+26p^4)E'(p)]$.

16) $\int x\, Sin^3 x\,.\, Cos^3 x\, dx \sqrt{1-p^2\, Cos^2 x} = \frac{1}{11025\, p^6}[-105(4-7p^2)\pi+2(31-31p^2+114p^4)$
$(1-p^2)F'(p)+(778-1167p^2-523p^4+456p^6)E'(p)]$.

17) $\int x\, Sin^3 x\,.\, Cos^5 x\, dx \sqrt{1-p^2\, Cos^2 x} = \frac{1}{99225\, p^8}[-1260(2-3p^2)\pi+(652-699p^2+$
$+99p^4+1000p^6)(1-p^2)F'(p)+(4388-5275p^2-1665p^4+1552p^6+2000p^8)E'(p)]$.

18) $\int x\, Sin^5 x\,.\, Cos\, x\, dx \sqrt{1-p^2\, Cos^2 x} = \frac{1}{11025\, p^6}[105(8-28p^2+35p^4)\frac{\pi}{2}-(62-13p^2-409p^4)$
$(1-p^2)F'(p)-2(389-1343p^2+1723p^4-409p^6)E'(p)]$.

19) $\int x\, Sin^5 x\,.\, Cos^3 x\, dx \sqrt{1-p^2\, Cos^2 x} = \frac{1}{99225\, p^8}[315(8-24p^2+21p^4)\pi-(652-1257p^2+$
$+657p^4-1052p^6)(1-p^2)F'(p)-(4388-12277p^2+8838p^4+3155p^6-2104p^8)E'(p)]$.

20) $\int x\, Sin^7 x\,.\, Cos\, x\, dx \sqrt{1-p^2\, Cos^2 x} = \frac{1}{99225\, p^8}[-315(16-72p^2+126p^4-105p^6)\frac{\pi}{2}+$
$+(652-1815p^2+774p^4+2629p^6)(1-p^2)F'(p)+(4388-19279p^2+33012p^4-$
$-27859p^6+5258p^8)E'(p)]$. Sur 12) à 20) voyez M, D. 16, 28.

21) $\int x\, Tg\, x\, dx \sqrt[4]{Cos\, x} = \sqrt[4]{27}.\left[(1-\sqrt{3})F'\left(Cos\frac{\pi}{12}\right)+2\sqrt{3}.E'\left(Cos\frac{\pi}{12}\right)\right]$ V. T. 54, N. 11*.

F. Alg. rat. ent.;
Circ. Dir. sous forme irrat. à dén. mon. TABLE 210. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{x\, dx}{Tg\, x}\sqrt[4]{Sin\, x} = \frac{3}{2}\pi+\sqrt[4]{27}.\left\{(\sqrt{3}-1)F'\left(Cos\frac{\pi}{12}\right)-2\sqrt{3}.E'\left(Cos\frac{\pi}{12}\right)\right\}$ V. T. 54, N. 11.

2) $\int \frac{\sqrt{Tg\, x}-\sqrt{Cot\, x}}{Sin\, 2x}x\, dx = -\infty$ (IV, 330).

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3) $\int \frac{x\,Cos\,x}{\sqrt{Sin^3 x}}\,dx = -\pi + 2\sqrt{2}.F'\left(Sin\frac{\pi}{4}\right)$ V. T. 55, N. 1.

4) $\int \frac{x\,Sin\,x}{\sqrt{Cos^3 x}}\,dx = \infty$ V. T. 55, N. 1.

5) $\int \frac{x\,Cos\,x}{\sqrt[3]{Sin\,x}}\,dx = \frac{3}{4}\pi + \frac{3}{2}\sqrt[4]{3}.\left\{\frac{3+\sqrt{3}}{2}F'\left(Sin\frac{\pi}{12}\right) - 3E'\left(Sin\frac{\pi}{12}\right)\right\}$ V. T. 54, N. 12.

6) $\int \frac{x\,Sin\,x}{\sqrt[3]{Cos\,x}}\,dx = \frac{3}{2}\sqrt[4]{3}.\left\{3E'\left(Sin\frac{\pi}{12}\right) - \frac{3+\sqrt{3}}{2}F'\left(Sin\frac{\pi}{12}\right)\right\}$ V. T. 54, N. 12.

7) $\int \frac{x\,Tg\,x}{\sqrt[3]{Cos\,x}}\,dx = \infty$ V. T. 55, N. 5.

8) $\int \frac{x\,Tg\,x}{\sqrt[3]{Cos^2 x}}\,dx = \infty$ V. T. 55, N. 6.

9) $\int \frac{x}{Tg\,x.\sqrt[3]{Sin\,x}}\,dx = \sqrt[4]{27}.F'\left(Cos\frac{\pi}{12}\right) - \frac{3}{2}\pi$ V. T. 55, N. 5.

10) $\int \frac{x}{Tg\,x.\sqrt[3]{Sin^2 x}}\,dx = \frac{3}{2}\sqrt[4]{27}.F'\left(Sin\frac{\pi}{12}\right) - \frac{3}{4}\pi$ V. T. 55, N. 6.

F. Alg. rat. ent.; Circ. Dir. à dén. $\sqrt{1-p^2 Sin^2 x}$, $\sqrt{1-p^2 Sin^2 x}^3$; $[p^2<1]$. TABLE 211. Lim. 0 et $\frac{\pi}{2}$

1) $\int \frac{x\,Sin\,x\,.\,Cos\,x}{\sqrt{1-p^2 Sin^2 x}}\,dx = \frac{1}{2p^2}[-\pi\sqrt{1-p^2} + 2E'(p)]$.

2) $\int \frac{x\,Sin\,x\,.\,Cos^3 x}{\sqrt{1-p^2 Sin^2 x}}\,dx = \frac{1}{9p^4}[(7p^2-5)E'(p) - (1-p^2)F'(p) + 3\pi\sqrt{1-p^2}^3]$.

3) $\int \frac{x\,Sin\,x\,.\,Cos^5 x}{\sqrt{1-p^2 Sin^2 x}}\,dx = \frac{1}{225p^6}[-60\pi\sqrt{1-p^2}^5 + 2(13-19p^2)(1-p^2)F'(p) + $
$+ (94-219p^2+149p^4)E'(p)]$.

4) $\int \frac{x\,Sin\,x\,.\,Cos^7 x}{\sqrt{1-p^2 Sin^2 x}}\,dx = \frac{1}{3675p^8}[840\pi\sqrt{1-p^2}^7 - (404-1041p^2+757p^4)(1-p^2)F'(p)$
$-(1276-4217p^2+4862p^4-2161p^6)E'(p)]$.

5) $\int \frac{x\,Sin^3 x\,.\,Cos\,x}{\sqrt{1-p^2 Sin^2 x}}\,dx = \frac{1}{9p^4}\left[-3(2+p^2)\frac{\pi}{2}\sqrt{1-p^2} + (1-p^2)F'(p) + (5+2p^2)E'(p)\right]$.

6) $\int \frac{x\,Sin^3 x\,.\,Cos^3 x}{\sqrt{1-p^2 Sin^2 x}}\,dx = \frac{1}{225p^6}[15(4+p^2)\pi\sqrt{1-p^2}^3 - 13(2-p^2)(1-p^2)F'(p) -$
$-2(47-47p^2-13p^4)E'(p)]$.

7) $\int \frac{x Sin^3 x . Cos^5 x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{1}{11025 p^8} [-420(6+p^2)\pi \sqrt{1-p^2}^5 + (1212-1849p^2+409p^4)(1-p^2)F'(p) + (3828-8045p^2+3855p^4+818p^6)E'(p)]$.

8) $\int \frac{x Sin^5 x . Cos x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{1}{225 p^6} \left[-15(8+4p^2+3p^4)\frac{\pi}{2}\sqrt{1-p^2} + 2(13+6p^2)(1-p^2)F'(p) + (94+31p^2+24p^4)E'(p)\right]$.

9) $\int \frac{x Sin^5 x . Cos^3 x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{1}{11025 p^8} [105(24+8p^2+3p^4)\pi \sqrt{1-p^2}^3 - (1212-575p^2-228p^4)(1-p^2)F'(p) - (3828-3439p^2-751p^4-456p^6)E'(p)]$.

10) $\int \frac{x Sin^7 x . Cos x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{1}{3675 p^8} \left[-105(16+8p^2+6p^4+5p^6)\frac{\pi}{2}\sqrt{1-p^2} + (404+233p^2+120p^4)(1-p^2)F'(p) + (1276+389p^2+256p^4+240p^6)E'(p)\right]$

Sur 1) à 10) voyez M, D. 16, 28.

11) $\int \frac{x Sin 2x}{\sqrt{1-p^2 Sin^2 x}} dx = -\frac{\pi}{p^2}\sqrt{1-p^2} + \frac{2}{p^2}E'(p)$ V. T. 53, N. 1.

12) $\int \frac{x Sin 4x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{4}{9p^4}\left[5(p^2-2)E'(p) - (1-p^2)2F'(p) + 3(4-p^2)\frac{\pi}{2}\sqrt{1-p^2}\right]$

V. T. 53, N. 4 et T. 209, N. 1.

13) $\int \frac{x Sin x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{1}{p(1-p^2)} Arcsin p$.

14) $\int \frac{x Sin x . Cos x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{1}{2p^2}\left[\frac{\pi}{\sqrt{1-p^2}} - 2F'(p)\right]$.

15) $\int \frac{x Sin x . Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{1}{p^4}[-\pi\sqrt{1-p^2} + (1-p^2)F'(p) + E'(p)]$.

16) $\int \frac{x Sin x . Cos^5 x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{1}{9p^6}[12\pi\sqrt{1-p^2}^3 - (10-9p^2)(1-p^2)F'(p) - 2(7-8p^2)E'(p)]$.

17) $\int \frac{x Sin x . Cos^7 x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{1}{75p^8}[-120\pi\sqrt{1-p^2}^5 + (92-171p^2+75p^4)(1-p^2)F'(p) + (148-323p^2+183p^4)E'(p)]$.

18) $\int \frac{x Sin^3 x . Cos x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{1}{p^4}\left[\frac{\pi}{2\sqrt{1-p^2}}(2-p^2) - F'(p) - E'(p)\right]$.

19) $\int \frac{x Sin^3 x . Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{1}{9p^6}[-3(4-p^2)\pi\sqrt{1-p^2} + 10(1-p^2)F'(p) + 7(2-p^2)E'(p)]$.

20) $\int \frac{x Sin^3 x . Cos^5 x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{1}{225p^8}[60(6-p^2)\pi\sqrt{1-p^2}^3 - (276-263p^2)(1-p^2)F'(p) - - (444-619p^2+149p^4)E'(p)]$.

21) $\int \frac{x Sin^5 x . Cos x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{1}{9p^6}\left[3(8-4p^2-p^4)\frac{\pi}{2\sqrt{1-p^2}} - (10-p^2)F'(p) - 2(7+p^2)E'(p)\right]$.

22) $\int \frac{x Sin^5 x . Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{1}{225p^8}[-15(24-8p^2-p^4)\pi\sqrt{1-p^2} + (276-13p^2)(1-p^2)F'(p) + + (444-269p^2-26p^4)E'(p)]$.

23) $\int \frac{x Sin^7 x . Cos x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{1}{75p^8}\left[15(16-8p^2-2p^4-p^6)\frac{\pi}{2\sqrt{1-p^2}} - (92-13p^2-4p^4)F'(p) - - (148+27p^2+8p^4)E'(p)\right]$. Sur 13) à 23) voyez M, D. 16, 28.

24) $\int \frac{x Sin 2x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{1}{p^2}\left[\frac{\pi}{\sqrt{1-p^2}} - 2F'(p)\right]$ V. T. 57, N. 1.

25) $\int \frac{x Sin 4x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{2}{p^4}\left[2(2-p^2)F'(p) + 4E'(p) - \frac{\pi}{\sqrt{1-p^2}}(4-3p^2)\right]$

V. T. 57, N. 4 et T. 211, N. 1.

26) $\int \frac{x Cos x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{\pi}{2\sqrt{1-p^2}} + \frac{1}{2p} l \frac{1-p}{1+p}$ V. T. 57, N. 2.

F. Alg. rat. ent.; $[p^2<1]$. Circ. Dir. à dén. $\sqrt{1-p^2 Sin^2 x}^5$; TABLE 212. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{x Sin x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{3(1-p^2)^2}\left[\sqrt{1-p^2} + \frac{2}{p} Arcsin\, p\right]$.

2) $\int \frac{x Sin x . Cos x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{3p^2(1-p^2)}\left[\frac{\pi}{2\sqrt{1-p^2}} - E'(p)\right]$.

3) $\int \frac{x Sin x . Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{3p^2(1-p^2)}\left[-\sqrt{1-p^2} + \frac{1}{p} Arcsin\, p\right]$.

4) $\int \frac{x Sin x . Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{3p^4}\left[\frac{\pi}{\sqrt{1-p^2}} + E'(p) - 3F'(p)\right]$.

5) $\int \frac{x Sin x . Cos^5 x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{3p^6}[-4\pi\sqrt{1-p^2} + 6(1-p^2)F'(p) + (2+p^2)E'(p)]$.

6) $\int \frac{x Sin x . Cos^7 x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{9p^8}[24\pi\sqrt{1-p^2}^3 - (28-27p^2)(1-p^2)F'(p) - - (20-19p^2-3p^4)E'(p)]$.

7) $\int \frac{x\, Sin^2 x . Cos x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{3p^2(1-p^2)}\left[-1+\frac{p^2\pi}{2\sqrt{1-p^2}}+\frac{1-p^2}{2p}\, l\frac{1+p}{1-p}\right]$.

8) $\int \frac{x\, Sin^3 x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{3p^2(1-p^2)^2}\left[\sqrt{1-p^2}-\frac{1-3p^2}{p}\, Arcsin\, p\right]$.

9) $\int \frac{x\, Sin^3 x . Cos x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{6p^4(1-p^2)}\left[\frac{3p^2-2}{\sqrt{1-p^2}}\pi - 2\,E'(p)+6(1-p^2)F'(p)\right]$.

10) $\int \frac{x\, Sin^3 x . Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{3p^6}\left[(4-3p^2)\frac{\pi}{\sqrt{1-p^2}} - 3(2-p^2)F'(p) - 2\,E'(p)\right]$.

11) $\int \frac{x\, Sin^3 x . Cos^5 x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{9p^8}[-12(2-p^2)\pi\sqrt{1-p^2}+(28-9p^2)(1-p^2)F'(p)+$
$+(20-13p^2)E'(p)]$.

12) $\int \frac{x\, Sin^5 x . Cos x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{3p^6(1-p^2)}\left[-(8-12p^2+3p^4)\frac{\pi}{2\sqrt{1-p^2}}+6(1-p^2)F'(p)+\right.$
$\left.+(2-3p^2)E'(p)\right]$.

13) $\int \frac{x\, Sin^5 x . Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{9p^8}\left[3(8-8p^2+p^4)\frac{\pi}{\sqrt{1-p^2}} - (28-19p^2)F'(p) - \right.$
$\left. -(20-7p^2)E'(p)\right]$.

14) $\int \frac{x\, Sin^7 x . Cos x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{9p^8(1-p^2)}\left[-3(16-24p^2+6p^4+p^6)\frac{\pi}{2\sqrt{1-p^2}}+\right.$
$\left.+(28-p^2)(1-p^2)F'(p)+(20-21p^2-2p^4)E'(p)\right]$. Sur 1) à 14) voyez M, D. 16, 28.

15) $\int \frac{x\, Sin\, 2x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{2}{3p^2}\,\frac{1}{1-p^2}\left[\frac{\pi}{2\sqrt{1-p^2}} - E'(p)\right]$ V. T. 58, N. 1.

16) $\int \frac{x\, Sin\, 4x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{2}{3p^4}\left[\frac{2-p^2}{1-p^2}2\,E'(p) - 12\,F'(p) + \frac{4-5p^2}{\sqrt{1-p^2}^3}\pi\right]$

V. T. 58, N. 4 et T. 211, N. 24.

17) $\int \frac{x\, Cos x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{3(1-p^2)}\left[(3-2p^2)\frac{\pi}{2\sqrt{1-p^2}} - 1 - \frac{1-p^2}{p}\, l\frac{1+p}{1-p}\right]$.

18) $\int \frac{x\, Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{6p^2}\left[\frac{2p^2\pi}{\sqrt{1-p^2}}+2-\frac{1+2p^2}{p}\, l\frac{1+p}{1-p}\right]$.

Sur 17) et 18) voyez M, D. 16, 28.

1) $$\int \frac{x\, Sin\, x}{\sqrt{1-p^2 Sin^2 x}^7} dx = \frac{1}{15p^2(1-p^2)^3}\left[(4+3p^2-2p^4)\sqrt{1-p^2} - 4\frac{1-3p^2}{p} Arcsin\, p\right].$$

2) $$\int \frac{x\, Sin\, x\,.\, Cos\, x}{\sqrt{1-p^2 Sin^2 x}^7} dx = \frac{1}{15p^2(1-p^2)^2}\left[\frac{3\pi}{2\sqrt{1-p^2}} + (1-p^2)F'(p) - 2(2-p^2)E'(p)\right].$$

3) $$\int \frac{x\, Sin\, x\,.\, Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^7} dx = \frac{1}{15p^4(1-p^2)^2}\left[(1-2p^2)\sqrt{1-p^2}^3 - \frac{1-3p^2}{p} Arcsin\, p\right].$$

4) $$\int \frac{x\, Sin\, x\,.\, Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^7} dx = \frac{1}{15p^4(1-p^2)}\left[\frac{\pi}{\sqrt{1-p^2}} - (1-p^2)F'(p) - (1+2p^2)E'(p)\right].$$

5) $$\int \frac{x\, Sin\, x\,.\, Cos^4 x}{\sqrt{1-p^2 Sin^2 x}^7} dx = \frac{1}{30p^6(1-p^2)}\left[(3-9p^2-4p^4)\sqrt{1-p^2} - \frac{3}{p}(1-3p^2) Arcsin\, p\right].$$

6) $$\int \frac{x\, Sin\, x\,.\, Cos^5 x}{\sqrt{1-p^2 Sin^2 x}^7} dx = \frac{1}{15p^6}\left[\frac{4\pi}{\sqrt{1-p^2}} - (14+p^2)F'(p) + 2(3+p^2)E'(p)\right].$$

7) $$\int \frac{x\, Sin\, x\,.\, Cos^7 x}{\sqrt{1-p^2 Sin^2 x}^7} dx = \frac{1}{15p^8}[-24\pi\sqrt{1-p^2} + (44+p^2)(1-p^2)F'(p) + $$
$$+ (4+9p^2+2p^4)E'(p)].$$

8) $$\int \frac{x\, Sin^2 x\,.\, Cos\, x}{\sqrt{1-p^2 Sin^2 x}^7} dx = \frac{1}{15p^3(1-p^2)^2}\left[(5-2p^2)\frac{p^3\pi}{2\sqrt{1-p^2}} - 2 + \frac{(1-p^2)^2}{p}\, l\frac{1+p}{1-p}\right].$$

9) $$\int \frac{x\, Sin^2 x\,.\, Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^7} dx = \frac{1}{30p^4(1-p^2)}\left[2\frac{p^4\pi}{\sqrt{1-p^2}} - 6 + (3+2p^2)\frac{1-p^2}{p}\, l\frac{1+p}{1-p}\right].$$

10) $$\int \frac{x\, Sin^3 x}{\sqrt{1-p^2 Sin^2 x}^7} dx = \frac{1}{15p^4(1-p^2)^3}\left[-(1-8p^2+2p^4)\sqrt{1-p^2} + (1-5p^2)\right.$$
$$\left.(1-3p^2)\frac{1}{p} Arcsin\, p\right].$$

11) $$\int \frac{x\, Sin^3 x\,.\, Cos\, x}{\sqrt{1-p^2 Sin^2 x}^7} dx = \frac{1}{15p^4(1-p^2)^2}\left[-(2-5p^2)\frac{\pi}{2\sqrt{1-p^2}} + (1-p^2)F'(p) + \right.$$
$$\left. + (1-3p^2)E'(p)\right].$$

12) $$\int \frac{x\, Sin^3 x\,.\, Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^7} dx = \frac{1}{30p^6(1-p^2)^2}\left[-(3-11p^2)\sqrt{1-p^2}^3 + (3-5p^2)\right.$$
$$\left.(1-3p^2)\frac{1}{p} Arcsin\, p\right].$$

13) $$\int \frac{x\, Sin^3 x\,.\, Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^7} dx = \frac{1}{15p^6(1-p^2)}\left[-(4-5p^2)\frac{\pi}{\sqrt{1-p^2}} + 14(1-p^2)F'(p) - \right.$$
$$\left. - 3(2-p^2)E'(p)\right].$$

14) $$\int \frac{x\, Sin^3 x . Cos^5 x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{1}{15 p^8}\left[(6-5p^2)\frac{4\pi}{\sqrt{1-p^2}} - (44-29p^2) F'(p) - (4+3p^2) E'(p)\right].$$

15) $$\int \frac{x\, Sin^4 x . Cos x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{1}{30 p^4 (1-p^2)^2}\left[3\frac{p^4 \pi}{\sqrt{1-p^2}} + 2(3-5p^2) - 3\frac{(1-p^2)^2}{p} l \frac{1+p}{1-p}\right].$$

16) $$\int \frac{x\, Sin^5 x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{1}{30 p^6 (1-p^2)^3}\left[(3-19p^2+41p^4-15p^6)\sqrt{1-p^2} + \right.$$
$$\left. + (3-10p^2+15p^4)(1-3p^2)\frac{1}{p} Arcsin p\right].$$

17) $$\int \frac{x\, Sin^5 x . Cos x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{1}{15 p^6 (1-p^2)^2}\left[(8-20p^2+15p^4)\frac{\pi}{2\sqrt{1-p^2}} - (14-15p^2)\right.$$
$$\left.(1-p^2) F'(p) + 2(3-4p^2) E'(p)\right].$$

18) $$\int \frac{x\, Sin^5 x . Cos^3 x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{1}{15 p^8 (1-p^2)}\left[-(24-40p^2+15p^4)\frac{\pi}{\sqrt{1-p^2}} + (44-15p^2)\right.$$
$$\left.(1-p^2) F'(p) + (4-7p^2) E'(p)\right].$$

19) $$\int \frac{x\, Sin^7 x . Cos x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{1}{15 p^8 (1-p^2)^2}\left[3(16-40p^2+30p^4-5p^6)\frac{\pi}{2\sqrt{1-p^2}} - \right.$$
$$\left. -(44-45p^2)(1-p^2) F'(p) - (4-17p^2+15p^4) E'(p)\right].$$

20) $$\int \frac{x\, Cos x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{1}{15 (1-p^2)^2}\left[(15-20p^2+8p^4)\frac{\pi}{2\sqrt{1-p^2}} - (7-5p^2) - \right.$$
$$\left. - 4\frac{(1-p^2)^2}{p} l \frac{1+p}{1-p}\right].$$

21) $$\int \frac{x\, Cos^3 x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{1}{15 p^2 (1-p^2)}\left[(5-4p^2)\frac{p^2 \pi}{\sqrt{1-p^2}} + (2-5p^2) - (1+4p^2)\right.$$
$$\left.\frac{1-p^2}{p} l \frac{1+p}{1-p}\right].$$

22) $$\int \frac{x\, Cos^5 x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{1}{30 p^4}\left[\frac{8p^4 \pi}{\sqrt{1-p^2}} + 2(3+5p^2) - (3+4p^2+8p^4)\frac{1}{p} l \frac{1+p}{1-p}\right].$$

Sur 1) à 22) voyez M, D. 16, 28.

1) $\int \frac{x\, Sin\, x\,.\, Cos\, x}{\sqrt{1-p^2 Cos^2 x}} dx = \frac{1}{2p^2}\{\pi - 2E'(p)\}$ (VIII, 588).

2) $\int \frac{x\, Sin\, x\,.\, Cos^3 x}{\sqrt{1-p^2 Cos^2 x}} dx = \frac{1}{9p^4}[3\pi-(1-p^2)F'(p)-(5+2p^2)E'(p)]$.

3) $\int \frac{x\, Sin\, x\,.\, Cos^5 x}{\sqrt{1-p^2 Cos^2 x}} dx = \frac{1}{225p^6}[60\pi-2(13+6p^2)(1-p^2)F'(p)-(94+31p^2+24p^4)E'(p)]$.

4) $\int \frac{x\, Sin\, x\,.\, Cos^7 x}{\sqrt{1-p^2 Cos^2 x}} dx = \frac{1}{3675p^8}[840\pi-(414+233p^2+120p^4)(1-p^2)F'(p)-$
$-(1276+389p^2+256p^4+240p^6)E'(p)]$.

5) $\int \frac{x\, Sin^3 x\,.\, Cos\, x}{\sqrt{1-p^2 Cos^2 x}} dx = \frac{1}{9p^4}\left[(3p^2-2)\frac{3\pi}{2}+(1-p^2)F'(p)+(5-7p^2)E'(p)\right]$.

6) $\int \frac{x\, Sin^3 x\,.\, Cos^3 x}{\sqrt{1-p^2 Cos^2 x}} dx = \frac{1}{225p^6}[-15(4-5p^2)\pi+13(2-p^2)(1-p^2)F'(p)+$
$+2(47-47p^2-13p^4)E'(p)]$.

7) $\int \frac{x\, Sin^3 x\,.\, Cos^5 x}{\sqrt{1-p^2 Cos^2 x}} dx = \frac{1}{11025p^8}[-420(6-7p^2)\pi+(1212-575p^2-238p^4)(1-p^2)F'(p)+$
$+(3828-3439p^2-751p^4-456p^6)E'(p)]$.

8) $\int \frac{x\, Sin^5 x\,.\, Cos\, x}{\sqrt{1-p^2 Cos^2 x}} dx = \frac{1}{225p^6}\left[15(8-20p^2+15p^4)\frac{\pi}{2}-2(13-19p^2)(1-p^2)F'(p)-\right.$
$\left.-(94-219p^2+149p^4)E'(p)\right]$.

9) $\int \frac{x\, Sin^5 x\,.\, Cos^3 x}{\sqrt{1-p^2 Cos^2 x}} dx = \frac{1}{11025p^8}[105(24-56p^2+33p^4)\pi-(1212-1849p^2+409p^4)$
$(1-p^2)F'(p)-(3828-8045p^2+3855p^4+818p^6)E'(p)]$.

10) $\int \frac{x\, Sin^7 x\,.\, Cos\, x}{\sqrt{1-p^2 Cos^2 x}} dx = \frac{1}{3675p^8}\left[-105(16-56p^2+70p^4-35p^6)\frac{\pi}{2}+(404-1041p^2+757p^4)\right.$
$\left.(1-p^2)F'(p)+(1276-4217p^2+4862p^4-2161p^6)E'(p)\right]$.

Sur 2) à 10) voyez M, D. 16, 28.

11) $\int \frac{x\, Sin\, 2x}{\sqrt{1-p^2 Cos^2 x}} dx = \frac{\pi}{p^2}-\frac{2}{p^2}E'(p)$ (VIII, 588).

12) $\int \frac{x\, Sin\, 4x}{\sqrt{1-p^2 Cos^2 x}} dx = \frac{4}{9p^4}\left[(4-3p^2)\frac{3}{2}\pi+(p^2-2)5E'(p)-2(1-p^2)F'(p)\right]$

V. T. 53, N. 4 et T. 209, N. 11.

13) $\int \frac{x\, Sin\, x}{\sqrt{1-p^2 Cos^2 x}^3}\, dx = \frac{1}{2p}\, l\, \frac{1+p}{1-p}$ (M, D. 16, 28).

14) $\int \frac{x\, Sin\, x \,.\, Cos\, x}{\sqrt{1-p^2 Cos^2 x}^3}\, dx = \frac{1}{p^2}\left[F'(p) - \frac{\pi}{2}\right]$ (VIII, 588).

15) $\int \frac{x\, Sin\, x \,.\, Cos^3 x}{\sqrt{1-p^2 Cos^2 x}^3}\, dx = \frac{1}{p^4}\,[F'(p) + E'(p) - \pi]$.

16) $\int \frac{x\, Sin\, x \,.\, Cos^5 x}{\sqrt{1-p^2 Cos^2 x}^3}\, dx = \frac{1}{9p^6}\,[-12\pi - (10-p^2)F'(p) + 2(7+p^2)E'(p)]$.

17) $\int \frac{x\, Sin\, x \,.\, Cos^7 x}{\sqrt{1-p^2 Cos^2 x}^3}\, dx = \frac{1}{75p^8}\,[-120\pi + (92-13p^2-4p^4)F'(p) + (148+27p^2+8p^4)E'(p)]$.

18) $\int \frac{x\, Sin^3 x \,.\, Cos\, x}{\sqrt{1-p^2 Cos^2 x}^3}\, dx = \frac{1}{p^4}\left[(2-p^2)\frac{\pi}{2} - (1-p^2)F'(p) - E'(p)\right]$.

19) $\int \frac{x\, Sin^3 x \,.\, Cos^3 x}{\sqrt{1-p^2 Cos^2 x}^3}\, dx = \frac{1}{9p^6}\,[3(4-3p^2)\pi - 10(1-p^2)F'(p) - 7(2-p^2)E'(p)]$.

20) $\int \frac{x\, Sin^3 x \,.\, Cos^5 x}{\sqrt{1-p^2 Cos^2 x}^3}\, dx = \frac{1}{225p^8}\,[60(6-5p^2)\pi - (276-13p^2)(1-p^2)F'(p) +$

$+ (444-269p^2-26p^4)E'(p)]$.

21) $\int \frac{x\, Sin^5 x \,.\, Cos\, x}{\sqrt{1-p^2 Cos^2 x}^3}\, dx = \frac{1}{9p^6}\Big[-3(8-12p^2+3p^4)\frac{\pi}{2} + (10-9p^2)(1-p^2)F'(p) +$

$+ 2(7-8p^2)E'(p)\Big]$.

22) $\int \frac{x\, Sin^5 x \,.\, Cos^3 x}{\sqrt{1-p^2 Cos^2 x}^3}\, dx = \frac{1}{225p^8}\,[-15(24-40p^2+15p^4)\pi + (276-263p^2)(1-p^2)F'(p) +$

$+ (444-619p^2+149p^4)E'(p)]$.

23) $\int \frac{x\, Sin^7 x \,.\, Cos\, x}{\sqrt{1-p^2 Cos^2 x}^3}\, dx = \frac{1}{75p^8}\,[15(16-40p^2+30p^4-5p^6)\frac{\pi}{2} - (92-171p^2+75p^4)$

$(1-p^2)F'(p) - (148-323p^2+183p^4)E'(p)]$. Sur 14) à 23) voyez M, D. 16, 28.

24) $\int \frac{x\, Sin\, 2x}{\sqrt{1-p^2 Cos^2 x}^3}\, dx = \frac{1}{p^2}\,[2F'(p) - \pi]$ (VIII, 588).

25) $\int \frac{x\, Sin\, 4x}{\sqrt{1-p^2 Cos^2 x}^3}\, dx = \frac{2}{p^4}\,[(2-p^2)2F'(p) + 4E'(p) - (4-p^2)\pi]$ V. T. 57, N. 4 et T. 214, N. 11.

26) $\int \frac{x\, Cos\, x}{\sqrt{1-p^2 Cos^2 x}^3}\, dx = \frac{1}{1-p^2}\left[\frac{\pi}{2} - \frac{1}{p}\, Arcsin\, p\right]$ (M, D. 16, 28).

1) $\int \frac{x\, Sin\, x}{\sqrt{1-p^2 Cos^2 x}^5} dx = \frac{1}{3}\left[\frac{1}{1-p^2}+\frac{1}{p} l \frac{1+p}{1-p}\right]$ (M, D. 16, 28).

2) $\int \frac{x\, Sin\, x\,.\, Cos\, x}{\sqrt{1-p^2 Cos^2 x}^5} dx = \frac{1}{3p^2(1-p^2)}\left[E'(p)-(1-p^2)\frac{\pi}{2}\right]$ (VIII, 588).

3) $\int \frac{x\, Sin\, x\,.\, Cos^2 x}{\sqrt{1-p^2 Cos^2 x}^5} dx = \frac{1}{6p^2}\left[\frac{2}{1-p^2}-\frac{1}{p} l \frac{1+p}{1-p}\right]$.

4) $\int \frac{x\, Sin\, x\,.\, Cos^3 x}{\sqrt{1-p^2 Cos^2 x}^5} dx = \frac{1}{3p^4(1-p^2)}[(1-p^2)\pi-3(1-p^2)F'(p)+E'(p)]$.

5) $\int \frac{x\, Sin\, x\,.\, Cos^5 x}{\sqrt{1-p^2 Cos^2 x}^5} dx = \frac{1}{3p^6(1-p^2)}[4(1-p^2)\pi-6(1-p^2)F'(p)-(2-3p^2)E'(p)]$.

6) $\int \frac{x\, Sin\, x\,.\, Cos^7 x}{\sqrt{1-p^2 Cos^2 x}^5} dx = \frac{1}{9p^8(1-p^2)}[24(1-p^2)\pi-(28-p^2)(1-p^2)F'(p)-$

$-(20-21p^2-2p^4)E'(p)]$.

7) $\int \frac{x\, Sin^2 x\,.\, Cos\, x}{\sqrt{1-p^2 Cos^2 x}^5} dx = \frac{1}{3p^2(1-p^2)}\left[\frac{1}{2}p^2\pi+\sqrt{1-p^2}-\frac{1}{p} Arcsin p\right]$.

8) $\int \frac{x\, Sin^3 x}{\sqrt{1-p^2 Cos^2 x}^5} dx = \frac{1}{6p^2}\left[-2+(1+2p^2)\frac{1}{p} l \frac{1+p}{1-p}\right]$.

9) $\int \frac{x\, Sin^3 x\,.\, Cos\, x}{\sqrt{1-p^2 Cos^2 x}^5} dx = \frac{1}{3p^4}\left[-(2+p^2)\frac{1}{2}\pi+3F'(p)-E'(p)\right]$.

10) $\int \frac{x\, Sin^3 x\,.\, Cos^3 x}{\sqrt{1-p^2 Cos^2 x}^5} dx = \frac{1}{3p^6}[-(4-p^2)\pi+3(2-p^2)F'(p)+2E'(p)]$.

11) $\int \frac{x\, Sin^3 x\,.\, Cos^5 x}{\sqrt{1-p^2 Cos^2 x}^5} dx = \frac{1}{9p^8}[-12(2-p^2)\pi+(28-19p^2)F'(p)+(20-7p^2)E'(p)]$.

12) $\int \frac{x\, Sin^5 x\,.\, Cos\, x}{\sqrt{1-p^2 Cos^2 x}^5} dx = \frac{1}{3p^6}\left[(8-4p^2-p^4)\frac{\pi}{2}-6(1-p^2)F'(p)-(2+p^2)E'(p)\right]$.

13) $\int \frac{x\, Sin^5 x\,.\, Cos^3 x}{\sqrt{1-p^2 Cos^2 x}^5} dx = \frac{1}{9p^8}[3(8-8p^2+p^4)\pi-(28-9p^2)(1-p^2)F'(p)-(20-13p^2)E'(p)]$.

14) $\int \frac{x\, Sin^7 x\,.\, Cos\, x}{\sqrt{1-p^2 Cos^2 x}^5} dx = \frac{1}{9p^8}\left[-3(16-24p^2+6p^4+p^6)\frac{\pi}{2}+(28-27p^2)(1-p^2)F'(p)+\right.$

$\left.+(20-19p^2-3p^4)E'(p)\right]$. Sur 3) à 14) voyez M, D. 16, 28.

15) $\int \frac{x\, Sin\, 2x}{\sqrt{1-p^2 Cos^2 x}^5} dx = \frac{1}{3p^2}\left[\frac{2}{1-p^2}E'(p)-\pi\right]$ (VIII, 588).

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16) $$\int \frac{x\, Sin\, 4x}{\sqrt{1-p^2 Cos^2 x}^5}\, dx = \frac{2}{3p^4}\left[(4-p^2)\pi - 12\, F'(p) + \frac{2-p^2}{1-p^2}\, 2\, E'(p)\right]$$

V. T. 58, N. 4 et T. 214, N. 24.

17) $$\int \frac{x\, Cos\, x}{\sqrt{1-p^2 Cos^2 x}^5}\, dx = \frac{1}{3(1-p^2)^2}\left[(3-p^2)\frac{\pi}{2} - \sqrt{1-p^2} - \frac{2}{p}\, Arcsin\, p\right].$$

18) $$\int \frac{x\, Cos^3 x}{\sqrt{1-p^2 Cos^2 x}^5}\, dx = \frac{1}{3p^2(1-p^2)^2}\left[p^2\pi - \sqrt{1-p^2} + \frac{1-3p^2}{p}\, Arcsin\, p\right].$$

Sur 17) et 18) voyez M, D. 16, 28.

F. Alg. rat. ent.; Circ. Dir. à dén. $\sqrt{1-p^2 Cos^2 x}^7$; $[p^2<1]$. TABLE 216. Lim. 0 et $\frac{\pi}{2}$.

1) $$\int \frac{x\, Sin\, x}{\sqrt{1-p^2 Cos^2 x}^7}\, dx = \frac{1}{15}\left[\frac{7-5p^2}{(1-p^2)^2} + \frac{4}{p}\, l\frac{1+p}{1-p}\right].$$

2) $$\int \frac{x\, Sin\, x\,.\, Cos\, x}{\sqrt{1-p^2 Cos^2 x}^7}\, dx = \frac{1}{15p^2(1-p^2)^2}\left[3(1-p^2)^2\frac{\pi}{2} - (1-p^2)F'(p) + 2(2-p^2)E'(p)\right].$$

3) $$\int \frac{x\, Sin\, x\,.\, Cos^2 x}{\sqrt{1-p^2 Cos^2 x}^7}\, dx = \frac{1}{15p^2}\left[\frac{2}{(1-p^2)^2} - \frac{1}{p}\, l\frac{1+p}{1-p}\right].$$

4) $$\int \frac{x\, Sin\, x\,.\, Cos^3 x}{\sqrt{1-p^2 Cos^2 x}^7}\, dx = \frac{1}{15p^4(1-p^2)^2}\left[(1-p^2)^2\pi - (1-p^2)F'(p) - (1-3p^2)E'(p)\right].$$

5) $$\int \frac{x\, Sin\, x\,.\, Cos^4 x}{\sqrt{1-p^2 Cos^2 x}^7}\, dx = \frac{1}{30p^4}\left[-2\frac{3-5p^2}{(1-p^2)^2} + \frac{3}{p}\, l\frac{1+p}{1-p}\right].$$

6) $$\int \frac{x\, Sin\, x\,.\, Cos^5 x}{\sqrt{1-p^2 Cos^2 x}^7}\, dx = \frac{1}{15p^6(1-p^2)^2}\left[-4(1-p^2)^2\pi + (14-15p^2)(1-p^2)F'(p) - 2(3-4p^2)E'(p)\right].$$

7) $$\int \frac{x\, Sin\, x\,.\, Cos^7 x}{\sqrt{1-p^2 Cos^2 x}^7}\, dx = \frac{1}{15p^8(1-p^2)^2}\left[-24(1-p^2)^2\pi + (44-45p^2)(1-p^2)F'(p) + (4-17p^2+15p^4)E'(p)\right].$$

8) $$\int \frac{x\, Sin^2 x\,.\, Cos\, x}{\sqrt{1-p^2 Cos^2 x}^7}\, dx = \frac{1}{15p^4(1-p^2)^2}\left[-p^2(2-6p^2+3p^4)\frac{\pi}{2} - (1-2p^2)\sqrt{1-p^2}^3 + \frac{1-3p^2}{p}\, Arcsin\, p\right].$$

9) $$\int \frac{x\, Sin^2 x\,.\, Cos^3 x}{\sqrt{1-p^2 Cos^2 x}^7}\, dx = \frac{1}{30p^6(1-p^2)^2}\left[p^2(21-58p^2+54p^4-15p^6)\frac{\pi}{2} + (3-11p^2)\sqrt{1-p^2}^3 - (3-5p^2)(1-3p^2)\frac{1}{p}\, Arcsin\, p\right].$$

10) $\int \frac{x\,Sin^3 x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{1}{15p^2}\left[-\frac{2-5p^2}{1-p^2}+\frac{1+4p^2}{p}\,l\frac{1+p}{1-p}\right].$

11) $\int \frac{x\,Sin^3 x\,.\,Cos\,x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{1}{15p^4(1-p^2)}\left[-(2+3p^2)(1-p^2)\frac{\pi}{2}+(1-p^2)F'(p)+(1+2p^2)E'(p)\right].$

12) $\int \frac{x\,Sin^3 x\,.\,Cos^2 x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{1}{30p^4}\left[\frac{6}{1-p^2}-\frac{3+2p^2}{p}\,l\frac{1+p}{1-p}\right].$

13) $\int \frac{x\,Sin^3 x\,.\,Cos^3 x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{1}{15p^6(1-p^2)}[(4+p^2)(1-p^2)\pi-14(1-p^2)F'(p)+3(2-p^2)E'(p)].$

14) $\int \frac{x\,Sin^3 x\,.\,Cos^5 x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{1}{15p^8(1-p^2)}[4(6-p^2)(1-p^2)\pi-(44-15p^2)(1-p^2)F'(p)-$

$-(4-3p^2)E'(p)].$

15) $\int \frac{x\,Sin^4 x\,.\,Cos\,x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{1}{30p^6(1-p^2)}\Big[-3p^2(7-11p^2+3p^4)\frac{\pi}{2}-(3-9p^2-4p^4)$

$\sqrt{1-p^2}+\frac{3}{p}(1-3p^2)\,Arcsin\,p\Big].$

16) $\int \frac{x\,Sin^5 x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{1}{30p^4}\left[-2(3+5p^2)+\frac{3+4p^2+8p^4}{p}\,l\frac{1+p}{1-p}\right].$

17) $\int \frac{x\,Sin^5 x\,.\,Cos\,x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{1}{15p^6}\left[-(8+4p^2+3p^4)\frac{\pi}{2}+(14+p^2)F'(p)-2(3+p^2)E'(p)\right].$

18) $\int \frac{x\,Sin^5 x\,.\,Cos^3 x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{1}{15p^8}[-(24-8p^2-p^4)\pi+(44-29p^2)F'(p)+(4-3p^2)E'(p)].$

19) $\int \frac{x\,Sin^7 x\,.\,Cos\,x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{1}{15p^8}\Big[3(16-8p^2-2p^4-p^6)\frac{\pi}{2}-(44+p^2)(1-p^2)F'(p)-$

$-(4+9p^2+2p^4)E'(p)\Big].$

20) $\int \frac{x\,Cos\,x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{1}{15p^2(1-p^2)^3}\Big[p^2(7-6p^2+3p^4)\frac{\pi}{2}-(4+3p^2-2p^4)\sqrt{1-p^2}+$

$+\frac{1-3p^2}{p}\,4\,Arcsin\,p\Big].$

21) $\int \frac{x\,Cos^3 x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{1}{15p^4(1-p^2)^3}\Big[p^2(2-p^2+3p^4)\frac{\pi}{2}+(1-8p^2+2p^4)\sqrt{1-p^2}-$

$-(1-5p^2)(1-3p^2)\frac{1}{p}\,Arcsin\,p\Big].$

22) $\int \frac{x\,Cos^5 x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{1}{30p^6(1-p^2)^3}\Big[-p^2(21-83p^2+114p^4-83p^6+15p^8)-$

$-(3-19p^2+41p^4-15p^6)\sqrt{1-p^2}+(3-10p^2+15p^4)(1-3p^2)\frac{1}{p}\,Arcsin\,p\Big].$

Sur 1) à 22) voyez M, D. 16, 28.

1) $\int \frac{x\, Sin\, x}{\sqrt{q+p\, Cos\, x}^3}\, dx = \frac{1}{p}\left[\frac{\pi}{\sqrt{q}} - \frac{4}{\sqrt{p+q}} F\left(\frac{\pi}{4}, \sqrt{\frac{2p}{p+q}}\right)\right]$ V. T. 56, N. 5.

2) $\int \frac{x\, Sin\, x}{\sqrt{q-p\, Cos\, x}^3}\, dx = \frac{1}{p}\left[\frac{-\pi}{\sqrt{q}} + \frac{4}{\sqrt{p+q}}\left\{F'\left(\sqrt{\frac{2p}{p+q}}\right) - F\left(\frac{\pi}{4}, \sqrt{\frac{2p}{p+q}}\right)\right\}\right]$ V. T. 56, N. 6.

3) $\int \frac{x\, Sin\, 2x}{\sqrt{q+p\, Cos\, x}^3}\, dx = \frac{4}{p^2}\left[-\pi\sqrt{q} + \frac{2}{\sqrt{p+q}}\left\{(p+q)\, E\left(\frac{\pi}{4}, \sqrt{\frac{2p}{p+q}}\right) + q\, F\left(\frac{\pi}{4}, \sqrt{\frac{2p}{p+q}}\right)\right\}\right]$
V. T. 56, N. 7 et T. 217, N. 1.

4) $\int \frac{x\, Sin\, 2x}{\sqrt{q-p\, Cos\, x}^3}\, dx = \frac{4}{p^2}\left[-\pi\sqrt{q} + \frac{2q}{\sqrt{p+q}}\left\{F'\left(\sqrt{\frac{2p}{p+q}}\right) - F\left(\frac{\pi}{4}, \sqrt{\frac{2p}{p+q}}\right)\right\} + \right.$
$\left. + 2\sqrt{p+q}\,.\left\{E'\left(\sqrt{\frac{2p}{p+q}}\right) - E\left(\frac{\pi}{4}, \sqrt{\frac{2p}{p+q}}\right)\right\}\right]$ V. T. 56, N. 8 et T. 217, N. 2.

5) $\int \frac{x\, Sin\, x}{\sqrt{1+p^2\, Cos^2\, x}^3}\, dx = \frac{1}{p} Arctg\, p$ V. T. 60, N. 5.

6) $\int \frac{x\, Cos\, x}{\sqrt{1+p^2\, Sin^2\, x}^3}\, dx = \frac{\pi}{2\sqrt{1+p^2}} - \frac{1}{p} Arctg\, p$ V. T. 60, N. 5.

7) $\int \frac{x\, Sin\, 2x}{\sqrt{1+Sin^2\, x}^3}\, dx = \frac{-\pi}{\sqrt{2}} + \sqrt{2}\,.F'\left(Sin\frac{\pi}{4}\right)$ V. T. 60, N. 1.

8) $\int \frac{x\, Sin\, 2x}{\sqrt{1+Cos^2\, x}^3}\, dx = \pi - \sqrt{2}\,.F'\left(Sin\frac{\pi}{4}\right)$ (VIII, 588).

9) $\int \frac{1 - x\, Cot\, x}{\sqrt{1 - Cos^2\lambda\,.\, Cos^2 x}} \frac{dx}{Sin\, x} = \frac{1}{2}\, \frac{\pi}{1+Cos\,\lambda} + \frac{\lambda\, Cot\,\lambda - 1}{Sin\,\lambda}$ (IV, 332).

10) $\int \frac{Cot\, x + \frac{1}{2} p^2\, Sin\, 2x}{\sqrt{1-p^2\, Sin^2\, x}} \frac{x\, dx}{\sqrt{Sin\, x}} = \left[-\pi\sqrt{1+p^2} + 4\frac{a F'(a) + b F'(b)}{(a+b)^2} + 4\frac{b-a}{(a+b)^2}\{E'(b) - E'(a)\}\right]$
$\left[\text{où } 2a^2 = \frac{(1-\sqrt{p})^2}{1+p},\, 2b^2 = \frac{(1+\sqrt{p})^2}{1+p}\right]$ V. T. 55, N. 4.

11) $\int \frac{x}{Sin\, x + Cos\, x} \frac{dx}{\sqrt{Sin\, 2x}} = \frac{1}{8}\pi^2\sqrt{2}$ V. T. 251, N. 2.

12) $\int \frac{x}{\sqrt[3]{Sin^2 x} + \sqrt[3]{Cos^2 x}} \frac{dx}{\sqrt[3]{Sin^2 x\,.\, Cos^2 x}} = \frac{3}{8}\pi^2$ V. T. 251, N. 8.

F. Alg. rat. ent.; Circ. Dir. ent. TABLE 218. Lim. 0 et π.

1) $\int x\, Sin\, ax\, dx = \frac{\pi}{a} Cos\{(a+1)\pi\}$ (VIII, 214).

2) $\int x\, Cos\, ax\, dx = \frac{1}{a^2}(Cos\, a\pi - 1)$ (VIII, 215).

3) $\int x \, Sin \left\{ \left(a - \frac{1}{2} \right) x \right\} dx = \frac{4}{(2a-1)^2} Sin \left(\frac{2a-1}{2} \pi \right)$ (IV, 333).

4) $\int x \, Tang \, x \, dx = -\pi \, l2$ V. T. 306, N. 1. 5) $\int x \, Sin \, x . Cos \, ax \, dx = (-1)^{a+1} \frac{\pi}{a^2-1}$ (IV, 333).

6) $\int x \, Sin \, ax . Cos \, x \, dx = (-1)^a \frac{a\pi}{a^2-1}$ (IV, 333).

7) $\int x \, Sin^q x \, dx = \frac{\pi^2}{2^{q+1}} \frac{\Gamma(q+1)}{\{\Gamma(\frac{1}{2}q+1)\}^2}$ (IV, 333).

8) $\int x \, Sin^{2a} x \, dx = \frac{1}{2} \pi^2 \frac{1^{a/2}}{2^{a/2}}$ (VIII, 256). 9) $\int x \, Sin^{2a+1} x \, dx = \pi \frac{2^{a/2}}{3^{a/2}}$ (VIII, 256).

10) $\int x \, Cos^{2a} x \, dx = \frac{1}{2} \pi^2 \frac{1^{a/2}}{2^{a/2}}$ (VIII, 256). 11) $\int x \, Sin \, x . Cos^{2a} x \, dx = \frac{\pi}{2a+1}$ (IV, 333).

12) $\int \left(\frac{\pi}{2} - x \right) Tg \, x \, dx = \pi \, l2$ V. T. 250, N. 3.

13) $\int x^2 \, Sin \, ax \, dx = \frac{1}{a^3} [(2 - a^2 \pi^2) Cos \, a\pi - 2]$ V. T. 218, N. 2.

14) $\int x^2 \, Cos \, ax \, dx = \frac{2\pi}{a^2} Cos \, a\pi$ V. T. 218, N. 1.

15) $\int x \, Sec \, x \, dx = 4 \sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 248, N. 2.

F. Alg. rat. ent.; Circ. Dir. en dén. binôme. TABLE 219. Lim. 0 et π.

1) $\int \frac{x^2}{1 - Cos \, x} dx = 4\pi \, l2$ V. T. 205, N. 1.

2) $\int \frac{x}{p \pm Cos \, x} dx = \frac{\pi}{2\sqrt{p^2-1}} \pm \frac{4}{\sqrt{p^2-1}} \sum_0^\infty \frac{\{p - \sqrt{p^2-1}\}^{2n+1}}{(2n+1)^2}$ $[p > 1]$ (IV, 334).

3) $\int \frac{x}{Cos \, x \pm Cos \, \lambda} dx = -4 \, Cosec \, \lambda . \sum_0^\infty \frac{Sin\{(2n+1)\lambda\}}{(2n+1)^2}$ (IV, 334).

4) $\int \frac{x \, Sin \, x}{p + Cos \, x} dx = -\pi \, l \{2(1-p)\}$ $[p^2 < 1]$, $= \pi \, l \frac{p + \sqrt{p^2-1}}{2(p-1)}$ $[p^2 > 1]$ (VIII, 589).

5) $\int \frac{x \, Sin \, x}{1 - p \, Cos \, x} dx = \frac{\pi}{p} l \frac{2(1+p)}{1+\sqrt{1-p^2}}$ $[p^2 < 1]$, $= \frac{\pi}{p} l \frac{2p}{1+p}$ $[p^2 > 1]$ (VIII, 589).

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6) $\int \frac{x \, Sin\, x}{i \pm Cos\, x} dx = \mp 2\pi \, l \, \{1 \mp (1 - \sqrt{2})\, i\}$ (IV, 334).

7) $\int \frac{x^a \, Sin\, x}{Cos\, x - Cos\, \lambda} dx = -\pi^a \, l \, \{2(1 + Cos\, \lambda)\} - 2 \, . \, 1^{a/1} \, Cos\, \frac{1}{2} a \pi \, . \sum_0^\infty \frac{Cos\, n\lambda}{n^{a+1}} - 2 \sum_1^\infty \left\{ \frac{Cos\, n\lambda}{n} (-1)^n \right.$
$\left. \sum_1^\infty (-1)^m \, a^{2m/-1} \, \pi^{a-2m} \frac{1}{n^{2m}} \right\}$ (IV, 335).

8) $\int \frac{x^a \, Sin\, x}{Cos\, x + Cos\, \lambda} dx = -\pi^a \, l \, \{2(1 - Cos\, \lambda)\} + 2 \, . \, 1^{a/1} \, Cos\, \frac{1}{2} a \pi \, . \sum_0^\infty (-1)^{n-1} \frac{Cos\, n\lambda}{n^{a+1}} - 2 \sum_1^\infty$
$\left\{ \frac{Cos\, n\lambda}{n} \sum_1^\infty (-1)^m \, a^{2m/-1} \, \pi^{a-2m} \frac{1}{n^{2m}} \right\}$ (IV, 334).

9) $\int \frac{x^p \, Sin\, x}{Cos\, x \pm q} dx = 2 \, Cos\, \frac{1}{2} p\pi \, . \, \Gamma(1+p) \sum_1^\infty \frac{(\mp c)^n}{n^{p+1}} - 2\pi^p \, l \, (1 \mp c) - 2 \sum_1^\infty \frac{(\pm c)^n}{n} \sum_1^\infty \left\{ (-1)^{m-1} p^{2m/-1} \right.$
$\left. \pi^{a-2m} \frac{1}{n^{2m}} \right\}$ [où $c = q - \sqrt{q^2 - 1}$] (IV, 334).

10) $\int \frac{x}{p^2 - Cos^2 x} dx = \frac{\pi}{2p\sqrt{p^2 - 1}}$ $[p^2 > 1]$, $= 0$ $[p^2 < 1]$ (VIII, 327).

11) $\int \frac{x \, Sin\, x}{1 + Cos^2 x} dx = \frac{1}{4} \pi^2$ (VIII, 423).

12) $\int \frac{x \, Sin\, x}{1 - Cos^2 \lambda \, . \, Sin^2 x} dx = \pi (\pi - 2\lambda) \, Cosec\, 2\lambda$ (VIII, 423).

13) $\int \frac{x \, Sin\, x}{p^2 - Cos^2 x} dx = \frac{\pi}{2p} \, l \, \frac{1+p}{1-p}$ $[p < 1]$, $= \frac{\pi}{2p} \, l \, \frac{p+1}{p-1}$ $[p > 1]$ **V. T. 219, N. 4.**

14) $\int \frac{x \, Sin\, x}{Tg^2 \lambda + Cos^2 x} dx = \frac{1}{2} \pi (\pi - 2\lambda) \, Cot\, \lambda$ (VIII, 423*).

15) $\int \frac{x \, Cos\, x}{1 + p \, Sin\, x} dx = \frac{2\pi}{p} \, l \, \frac{2}{1 + \sqrt{1 + 2p}}$ V. T. 308, N. 14.

16) $\int \frac{x \, Cos\, x}{p^2 - Cos^2 x} dx = \frac{-4}{\sqrt{p^2 - 1}} \sum_0^\infty \frac{\{p - \sqrt{p^2 - 1}\}^{2n+1}}{(2n+1)^2}$ $[p^2 > 1]$ **V. T. 219, N. 2.**

17) $\int \frac{x \, Cos\, x}{Cos^2 \lambda - Cos^2 x} dx = \frac{4}{Sin\, \lambda} \sum_0^\infty \frac{Sin\, \{(2n+1)\lambda\}}{(2n+1)^2}$ **V. T. 219, N. 3.**

18) $\int \frac{p \, Cos\, x + q}{Cos^2 x + Cot^2 \lambda} x \, Sin\, x \, dx = 2p\pi \, l \left(Cos\, \frac{1}{2} \lambda \right) + \pi q \lambda \, Tg\, \lambda$ (IV, 334).

19) $\int \frac{x \, Sin\, 2x}{p^2 - Cos^2 x} dx = \pi \, l \, \{4(1 - p^2)\}$ $[p^2 < 1]$, $= 2\pi \, l \, [2\{1 - p^2 + p\sqrt{p^2 - 1}\}]$ $[p^2 > 1]$
V. T. 219, N. 4.

1) $\int \frac{x \, Sin\, x}{(1 + Cos\lambda . Cos x)^2} dx = \pi \sqrt{2} . Cosec \lambda . Cosec \frac{1}{2}\lambda : Cosec \left(\frac{\pi + 2\lambda}{4}\right)$ V. T. 64, N. 12.

2) $\int \frac{x \, Cos\, x}{(1 + Cos\lambda . Sin\, x)^2} dx = \frac{4\lambda}{Sin 2\lambda} - \frac{\pi}{Cos\lambda}$ (IV, 336).

3) $\int \frac{x \, Sin\, x}{(p + q\, Cos\, x)^2} dx = \frac{\pi}{q}\left\{\frac{1}{p-q} - \frac{1}{\sqrt{p^2 - q^2}}\right\}$ $[p^2 > q^2]$ V. T. 64, N. 12.

4) $\int \frac{x^2 \, Sin\, x}{(p \pm Cos\, x)^2} dx = \frac{\mp \pi}{\sqrt{p^2 - 1}} - \frac{\pi^2}{1 \mp p} - \frac{8}{\sqrt{p^2-1}} \sum_0^\infty \frac{\{p - \sqrt{p^2-1}\}^{2n+1}}{(2n+1)^2}$ $[p > 1]$ V. T. 219, N. 2.

5) $\int \frac{x^2 \, Sin\, x}{(Cos\, x \pm Cos\lambda)^2} dx = \frac{-\pi^2}{1 \mp Cos\lambda} + \frac{8}{Sin\lambda} \sum_0^\infty \frac{Sin\{(2n+1)\lambda\}}{(2n+1)^2}$ V. T. 219, N. 3.

6) $\int \frac{1 \pm p\, Cos\, x}{(p \pm Cos\, x)^2} x^2 dx = 2\pi l \{2(1 \mp p)\}$ $[p^2 < 1]$, $= 4\pi l\{1 \mp p \pm \sqrt{p^2 - 1}\}$ $[p^2 > 1]$
V. T. 219, N. 4.

7) $\int \frac{x \, Sin\, x}{(p + q\, Cos\, x)^3} dx = \frac{\pi}{2q(q-p)^2}$ $[p^2 < q^2]$, $= \frac{\pi}{2q(p-q)^2}\left(1 - p\sqrt{\frac{p-q}{(p+q)^3}}\right)$ $[p^2 > q^2]$
(VIII, 587).

8) $\int \frac{x \, Sin\, 2x}{(1 - Cos^2\lambda . Sin^2 x)^2} dx = 2\pi \frac{Sin\lambda - 1}{Cos\lambda . Sin 2\lambda}$ V. T. 220, N. 2.

9) $\int \frac{x^2 \, Sin\, 2x}{(p^2 - Cos^2 x)^2} dx = \frac{\pi}{p} \frac{\sqrt{p^2 - 1} - 2p}{p^2 - 1}$ $[p^2 > 1]$ V. T. 219, N. 10.

10) $\int \frac{q\, Cos\, 2x - Sin^2 x}{(q + Sin^2 x)^2} x^2 dx = -4\pi l [2\{-q + \sqrt{q(q+1)}\}]$ V. T. 219, N. 19.

11) $\int \frac{q\, Cos\, 2x + Sin^2 x}{(q - Sin^2 x)^2} x^2 dx = 2\pi l(1+q)$ V. T. 219, N. 19.

12) $\int \frac{p^2 - 1 - Sin^2 x}{(p^2 - Cos^2 x)^2} x^2\, Cos\, x\, dx = \frac{\pi}{p} l \frac{1-p}{1+p}$ $[p < 1]$, $= \frac{\pi}{p} l \frac{p-1}{p+1}$ $[p > 1]$ V. T. 219, N. 13.

13) $\int \frac{x \, Sin\, 2x}{(p^2 Sin^2 x + q^2 Cos^2 x)^2} dx = \frac{-\pi}{pq^2(p+q)}$ (VIII, 588*).

14) $\int \frac{x \, Sin\, 2x}{(p^2 Sin^2 x + q^2 Cos^2 x)^3} dx = \frac{-\pi}{4p^2 q^4} \frac{2p^2 + pq + q^2}{p+q}$ V. T. 48, N. 13.

1) $\int \frac{x\,Sin\,x}{1+q+q\,Cos\,x}\,dx = \frac{2\pi}{q}\,l\frac{1+\sqrt{1+2q}}{2}$ V. T. 308, N. 15.

2) $\int \frac{x\,Sin\,x}{1-2r\,Cos\,x+r^2}\,dx = \frac{\pi}{r}\,l(1+r)\,[r^2<1], = \frac{\pi}{r}\,l\frac{1+r}{r}[r^2>1]$ (VIII, 678*).

3) $\int \frac{Sin\,bx}{1-2p\,Cos\,x+p^2}\,x^{2a+1}\,dx = (-1)^{a+1}\,\frac{\pi p^b}{1-p^2}(lp)^{2a+1}$ (VIII, 575).

4) $\int \frac{Sin\,bx\,.\,Sin\,x}{1-2p\,Cos\,x+p^2}\,x^{2a}\,dx = (-1)^a\,\frac{\pi}{2}\,p^{b-1}(lp)^{2a}$ (VIII, 575).

5) $\int \frac{Sin\,bx\,.\,Cos\,x}{1-2p\,Cos\,x+p^2}\,x^{2a+1}\,dx = (-1)^a\,\frac{\pi}{2}\,\frac{1+p^2}{1-p^2}p^{b-1}(lp)^{2a+1}$ (VIII, 575).

6) $\int \frac{Cos\,bx}{1-2p\,Cos\,x+p^2}\,x^{2a}\,dx = (-1)^a\,\frac{\pi p^b}{1-p^2}(lp)^{2a}$ (VIII, 575).

7) $\int \frac{Cos\,bx\,.\,Sin\,x}{1-2p\,Cos\,x+p^2}\,x^{2a+1}\,dx = (-1)^a\,\frac{\pi}{2}\,p^{b-1}\,(lp)^{2a+1}$ (VIII, 575).

8) $\int \frac{Cos\,bx\,.\,Cos\,x}{1-2p\,Cos\,x+p^2}\,x^{2a}\,dx = (-1)^a\,\frac{\pi}{2}\,\frac{1+p^2}{1-p^2}p^{b-1}\,(lp)^{2a}$ (VIII, 575).

9) $\int \frac{Sin\,\{(2b+1)x\}}{1-2q\,Cos\,2x+q^2}\,x^{2a+1}\,dx = 0$ V. T. 221, N. 3.

10) $\int \frac{Sin\,2bx\,.\,Sin\,x}{1-2q\,Cos\,2x+q^2}\,x^{2a}\,dx = 0$ V. T. 221, N. 4.

11) $\int \frac{Sin\,2bx\,.\,Cos\,x}{1-2q\,Cos\,2x+q^2}\,x^{2a+1}\,dx = 0$ V. T. 221, N. 3.

12) $\int \frac{Sin\,\{(2b+1)x\}\,.\,Sin\,x}{1-2q\,Cos\,2x+q^2}\,x^{2a}\,dx = (-1)^a\,\frac{\pi}{2^{2a+2}}\,\frac{q^b}{1+q}(lq)^{2a}$ V. T. 221, N. 4.

13) $\int \frac{Sin\,\{(2b+1)x\}\,.\,Cos\,x}{1-2q\,Cos\,2x+q^2}\,x^{2a+1}\,dx = (-1)^{a+1}\,\frac{\pi}{2^{2a+3}}\,\frac{q^b}{1-q}(lq)^{2a+1}$ V. T. 221, N. 3.

14) $\int \frac{Sin\,\{(2b+1)x\}\,.\,Sin\,2x}{1-2q\,Cos\,2x+q^2}\,x^{2a}\,dx = 0$ V. T. 221, N. 4.

15) $\int \frac{Sin\,\{(2b+1)x\}\,.\,Cos\,2x}{1-2q\,Cos\,2x+q^2}\,x^{2a+1}\,dx = 0$ V. T. 221, N. 9, 21.

16) $\int \frac{Cos\,\{(2b+1)x\}}{1-2q\,Cos\,2x+q^2}\,x^{2a}\,dx = 0$ V. T. 221, N. 6.

17) $\int \frac{Cos\,2bx\,.\,Sin\,x}{1-2q\,Cos\,2x+q^2} x^{2a+1} dx = 0$ V. T. 221, N. 7.

18) $\int \frac{Cos\,2bx\,.\,Cos\,x}{1-2q\,Cos\,2x+q^2} x^{2a} dx = 0$ V. T. 221, N. 6.

19) $\int \frac{Cos\{(2b+1)x\}.Sin\,x}{1-2q\,Cos\,2x+q^2} x^{2a+1} dx = (-1)^a \frac{\pi}{2^{2a+2}} \frac{q^b}{1+q} (lq)^{2a+1}$ V. T. 221, N. 7.

20) $\int \frac{Cos\{(2b+1)x\}.Cos\,x}{1-2q\,Cos\,2x+q^2} x^{2a} dx = (-1)^a \frac{\pi}{2^{2a+2}} \frac{q^b}{1-q} (lq)^{2a}$ V. T. 221, N. 6.

21) $\int \frac{Cos\{(2b+1)x\}.Sin\,2x}{1-2q\,Cos\,2x+q^2} x^{2a+1} dx = 0$ V. T. 221, N. 8.

22) $\int \frac{Cos\{(2b+1)x\}.Cos\,2x}{1-2q\,Cos\,2x+q^2} x^{2a} dx = 0$ V. T. 221, N. 14, 16.

[Dans 9) à 22) on a $0<q<1$.]

F. Alg. rat. ent.; Circ. Dir. en dén. d' autre forme. TABLE 222. Lim. 0 et π.

1) $\int \frac{x\,Sin\,x}{q^2+2q\,Cos\,\lambda\,.\,Cos\,x+Cos^2 x} dx = \frac{2\pi}{q} Cosec\,\lambda\,.\,Arctg\left(\frac{h\,Sin\,\theta - q\,Sin\,\lambda}{1-q\,Cos\,\lambda + h\,Cos\,\theta}\right)$ V. T. 222, N. 2, 3.

2) $\int \frac{Cos\,x+q\,Cos\,\lambda}{q^2+2q\,Cos\,\lambda\,.\,Cos\,x+Cos^2 x} x\,Sin\,x\,dx = -\pi\,l\{1-2q\,Cos\,\lambda+2h\,Cos\,\theta+q^2+h^2-2qh\,Cos(\lambda-\theta)\}$

3) $\int \frac{r+p\,Cos\,x}{q^2+2q\,Cos\,\lambda\,.\,Cos\,x+Cos^2 x} x\,Sin\,x\,dx = -\pi p\,l\{1-2q\,Cos\,\lambda+2h\,Cos\,\theta+q^2+h^2-2qh$ $Cos(\lambda-\theta)\} + \frac{r-pq\,Cos\,\lambda}{q\,Sin\,\lambda} 2\pi\,Arctg\left(\frac{h\,Sin\,\theta-q\,Sin\,\lambda}{1-q\,Cos\,\lambda+h\,Cos\,\theta}\right)$ (IV, 340).

$\left[\text{Dans 1) à 3) on a } Tg\,2\theta = \frac{q^2\,Sin\,2\lambda}{q^2\,Cos\,2\lambda - 1}, h^2 = 1-2q^2\,Cos\,2\lambda+q^4.\right]$

4) $\int \frac{\frac{1}{2}\pi - x}{Sin^2 x+(p\,Sin\,x+q\,Cos\,x)^2} dx = \frac{\pi}{q}\left\{\frac{1}{2} Arctg\left(\frac{2pq}{1+p^2-q^2}\right) - Arctg\left(\frac{2p}{1-p^2-q^2}\right)\right\}$

V. T. 254, N. 8.

5) $\int \frac{Sin\,x}{1-Cos\,\lambda\,.\,Cos\,x} \frac{x}{1-Cos\,\mu\,.\,Cos\,x} dx = \pi\,Cosec\left\{\frac{1}{2}(\lambda+\mu)\right\}.Cosec\left\{\frac{1}{2}(\lambda-\mu)\right\}.\,l\frac{1+Tg\frac{1}{2}\lambda}{1+Tg\frac{1}{2}\mu}$

V. T. 219, N. 5.

6) $\int \frac{x\,Sin\,x}{(1-2p\,Cos\,x+p^2)^2} dx = \frac{\pi}{(1-p)(1+p)^2} [p^2<1], = \frac{\pi}{p(p-1)(p+1)^2} [p^2>1]$

V. T. 65, N. 1.

7) $\int \frac{(1+p^2)\, Cos\, x - 2p}{(1-2p\, Cos\, x + p^2)^2} x^2\, dx = \frac{2\pi}{p}\, l \frac{p}{1+p} [p^2 \geqq 1], = -\frac{2\pi}{p}\, l(1+p) [p^2 < 1]$

V. T. 221, N. 2.

8) $\int \frac{x\, Sin\, x}{(1-2p\, Cos\, x + p^2)^3} dx = \frac{p^2 - 2p + 2}{2(1+p)^4 (1-p)^3} [p^2 < 1], = \frac{2p^2 - 2p + 1}{2p(p+1)^4 (p-1)^3} [p^2 > 1]$

V. T. 66, N. 2.

9) $\int \frac{x\, Sin\, x}{(1-2p\, Cos\, x + p^2)^{a+1}} dx = \frac{\pi}{2pa} \left\{ \frac{-1}{(1+p)^{2a}} + \frac{1}{(1-p^2)^{2a-1}} \sum_0^{a-1} \binom{a-1}{n}^2 p^{2n} \right\} [p^2 < 1], =$

$= \frac{\pi}{2pa} \left\{ \frac{-1}{(1+p)^{2a}} + \frac{1}{(p^2-1)^{2a-1}} \sum_0^{a-1} \binom{a-1}{n}^2 p^{2n} \right\} [p^2 > 1]$ V. T. 66, N. 2.

10) $\int \frac{x\, Sin\, 2x}{\sqrt{1-p^2\, Sin^2\, x}^3} dx = \frac{2}{p^2} \{\pi - 2F'(p)\}$ (VIII, 588).

11) $\int \frac{x\, Sin\, x}{\sqrt{1-2p\, Cos\, x + p^2}^3} dx = \frac{1}{p} \left\{ 2F'(p) - \frac{\pi}{1+p} \right\}$ (VIII, 588).

F. Alg. rat. ent.;
Circ. Dir.

TABLE 223.

Lim. 0 et 2 π.

1) $\int \frac{x\, dx}{Sin\, x} = 3\pi\, l2$ V. T. 250, N. 7.

2) $\int \frac{Sin\, a x}{1 \pm p\, Cos\, x} x\, dx = \frac{2\pi}{\sqrt{1-p^2}} \left\{ (\mp 1)^a \frac{\{1+\sqrt{1-p^2}\}^a - \{1-\sqrt{1-p^2}\}^a}{p^a}\, l \frac{2\sqrt{1 \pm p}}{\sqrt{1+p}+\sqrt{1-p}} + \right.$

$\left. + \sum_1^{a-1} \frac{(\mp 1)^n}{a-n} \frac{\{1+\sqrt{1-p^2}\}^n - \{1-\sqrt{1-p^2}\}^n}{p^n} \right\} [p^2 < 1]$ (IV, 342).

3) $\int \frac{Cos\, a x}{1 \pm p\, Cos\, x} x\, dx = \frac{2\pi^2}{\sqrt{1-p^2}} \left(\frac{1-\sqrt{1-p^2}}{\pm p} \right)^a [p^2 < 1]$ (IV, 342).

4) $\int \frac{x\, Sin\, x}{1-2p\, Cos\, x + p^2} dx = \frac{2\pi}{p}\, l(1-p) [p^2 < 1], = \frac{2\pi}{p}\, l \frac{p-1}{p} [p^2 > 1]$ V. T. 332, N. 1.

5) $\int \frac{x\, Sin\, a x}{1-2p\, Cos\, x + p^2} dx = \frac{2\pi}{1-p^2} \left\{ (p^{-a} - p^a)\, l(1-p) + \sum_1^{a-1} \frac{p^{-n} - p^n}{a-n} \right\}$ (IV, 342).

6) $\int \frac{Sin\, b x}{1-2p\, Cos\, x + p^2} x^{2a+1} dx = (-1)^{a+1} \frac{\pi p^b}{1-p^2} (lp)^{2a+1}$ V. T. 221, N. 3.

7) $\int \frac{Sin\, b x \,.\, Sin\, x}{1-2p\, Cos\, x + p^2} x^{2a} dx = (-1)^a \frac{\pi}{2} p^{b-1} (lp)^{2a}$ V. T. 221, N. 4.

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8) $\int \frac{Sin\, bx \,.\, Cos\, x}{1-2p\, Cos\, x+p^2} x^{2a+1}\, dx = (-1)^{a+1} \frac{\pi}{2} \frac{1+p^2}{1-p^2} p^{b-1} (lp)^{2a+1}$ V. T. 221, N. 5.

9) $\int \frac{Sin\, ax - p\, Sin\, \{(a+1)x\}}{1-2p\, Cos\, x+p^2} x\, dx = 2\pi p^a \left\{ l(1-p) + \sum_1^a \frac{1}{np^n} \right\}$ (VIII, 484).

10) $\int \frac{Cos\, bx}{1-2p\, Cos\, x+p^2} x^{2a}\, dx = (-1)^a \frac{\pi p^b}{1-p^2} (lp)^{2a}$ V. T. 221, N. 6.

11) $\int \frac{Cos\, bx \,.\, Sin\, x}{1-2p\, Cos\, x+p^2} x^{2a+1}\, dx = (-1)^a \frac{\pi}{2} p^{b-1} (lp)^{2a+1}$ V. T. 221, N. 7.

12) $\int \frac{Cos\, bx \,.\, Cos\, x}{1-2p\, Cos\, x+p^2} x^{2a}\, dx = (-1)^a \frac{\pi}{2} \frac{1+p^2}{1-p^2} p^{b-1} (lp)^{2a}$ V. T. 221, N. 8.

[Dans 5) à 12) on a $0 \leqq p \leqq 1$.]

13) $\int \frac{Cos\, ax - p\, Cos\, \{(a+1)x\}}{1-2p\, Cos\, x+p^2} x\, dx = 2\pi^2 p^a\ [p^2 < 1]$ (VIII, 484).

F. Algébr. rat.; Circ. Dir. — **TABLE 224.** — Lim. 0 et p.

1) $\int Sin\, qx \frac{dx}{x} = Si(pq)$ (VIII, 289).

2) $\int x\, Sin\, x\, dx \sqrt{Sin^2 p - Sin^2 x} = \frac{1}{8} \pi\, Sin^2 p + \frac{1}{4} \pi\, Cos^2 p \,.\, l\, Cos\, p$ (IV, 344).

3) $\int \sqrt{Sin^2 p - Sin^2 x} \frac{x\, dx}{Sin\, x} = \frac{\pi}{4}(1+Sin\, p)\, l(1+Sin\, p) + \frac{\pi}{4}(1-Sin\, p)\, l(1-Sin\, p)$ (IV, 344).

4) $\int \frac{x\, Sin\, x}{\sqrt{Sin^2 p - Sin^2 x}} dx = \frac{\pi}{2} l\, Sec\, p$ (IV, 344).

5) $\int \frac{x\, Sin^3 x}{\sqrt{Sin^2 p - Sin^2 x}} dx = -\frac{\pi}{4}(1+Sin^2 p)\, l\, Cos\, p - \frac{\pi}{8} Sin^2 p$ V. T. 224, N. 2, 4.

6) $\int \frac{x}{Sin\, x \,.\, \sqrt{Sin^2 p - Sin^2 x}} dx = \frac{\pi}{4} Cosec\, p \,.\, l \frac{1+Sin\, p}{1-Sin\, p}$ (IV, 344).

7) $\int \frac{x\, Sin\, x}{Cos^2 x \,.\, \sqrt{Sin^2 p - Sin^2 x}} dx = \frac{\pi}{2} Sec^2 p \,.\, (1-Cos\, p)$ (IV, 344).

8) $\int \frac{x\, Sin\, x}{1-Sin^2 q \,.\, Sin^2 x} \frac{dx}{\sqrt{Sin^2 p - Sin^2 x}} = \frac{\pi}{2\, Cos\, q} \frac{1}{1-Sin^2 p \,.\, Sin^2 q}\, l \frac{Cos\, q + \sqrt{1-Sin^2 p \,.\, Sin^2 q}}{2\, Cos\, p \,.\, Sin^2 \frac{1}{2} q}$

(IV, 344).

$$\frac{\ldots Sin\, x}{q - Sin^2 x} \frac{dx}{\sqrt{Sin^2 p - Sin^2 x}} = \frac{\pi\, Sec\, q}{2\sqrt{Sin^2 q - Sin^2 p}} \left\{ q - Arccos\left(\frac{Cos\, q}{Cos\, p}\right) \right\} \text{ (IV, 344).}$$

$$\frac{1 - x\, Cot\, x}{\ldots x . \sqrt{Sin^2 p - Sin^2 x}} Cos\, x\, dx = \frac{\pi}{4} Cosec^3 p - \frac{\pi}{8} Cos^2 p . Cosec^3 p . l \frac{1 + Sin\, p}{1 - Sin\, p} \text{ (IV, 344).}$$

r. rat.;
Dir.

TABLE 225.

Lim. p et q.

$$\frac{x}{\ldots in^2 x - Sin^2 p)(Sin^2 q - Sin^2 x)} dx = \frac{\pi}{2} Sec\, p . Cosec\, q . \mathrm{F}(c, q) \text{ (VIII, 310).}$$

$$\frac{x}{\ldots x . \sqrt{(Sin^2 x - Sin^2 p)(Sin^2 q - Sin^2 x)}} dx = \frac{\pi}{2} \frac{Sin\, p - Sin\, q}{Sin^2 p . Sin\, q} + \frac{\pi}{2\, Cos\, p . Sin\, q} \mathrm{F}(c, q) +$$
$$+ \frac{\pi\, Cos\, p}{2\, Sin^2 p . Sin\, q} \mathrm{E}(c, q) \text{ (VIII, 310).}$$

$$\frac{x}{\ldots x . \sqrt{(Sin^2 x - Sin^2 p)(Sin^2 q - Sin^2 x)}} dx = \frac{\pi}{2} \frac{Cos\, q - Cos\, p}{Cos^2 p . Cos\, q} + \frac{\pi}{2\, Cos\, p . Sin\, q} \mathrm{F}(c, q) +$$
$$+ \frac{\pi\, Sin\, q}{2\, Cos\, p . Cos^2 q} \mathrm{E}(c, q) \text{ (VIII, 310).}$$

$$\frac{x\, Sin^2 x}{\ldots in^2 x - Sin^2 p)(Sin^2 q - Sin^2 x)} dx = \frac{\pi}{2\, Cos\, p . Sin\, q} \mathrm{F}(c, q) - \frac{\pi\, Cos^2 q}{2\, Cos\, p . Sin\, q} \Pi(-Sin^2 \theta, c, q) -$$
$$- \frac{\pi}{4} l(1 + Sin^2 q - Sin^2 p) \text{ (IV, 345).}$$

$$\frac{x\, Sin^4 x}{\ldots in^2 x - Sin^2 p)(Sin^2 q - Sin^2 x)} dx = \frac{1}{8}(Sin^2 q - Sin^2 p) + \frac{\pi}{4\, Cos\, p . Sin\, q}(2 - Cos^2 p . Cos^2 q) \mathrm{F}(c, q) -$$
$$- \frac{\pi}{4} Cos\, p . Sin\, q . \mathrm{E}(c, q) - \frac{1}{8}(1 + Sin^2 p + Sin^2 q) \pi\, l(1 - Sin^2 p + Sin^2 q) -$$
$$- \frac{\pi\, Cos^2 q}{4\, Cos\, p . Sin\, q}(1 + Sin^2 p + Sin^2 q) \Pi(-Sin^2 \theta, c, q) \text{ (IV, 346).}$$

$$\ldots \sqrt{\frac{Sin^2 q - Sin^2 x}{Sin^2 x - Sin^2 p}} = \frac{\pi}{4} l(1 - Sin^2 p + Sin^2 q) + \frac{\pi\, Cos^2 q}{2\, Cos\, p . Sin\, q} \Pi(-Sin^2 \theta, c, q) -$$
$$- \frac{\pi\, Cos^2 q}{2\, Cos\, p . Sin\, q} \mathrm{F}(c, q) \text{ V. T. 225, N. 1, 4.}$$

$$\ldots \sqrt{\frac{Sin^2 x - Sin^2 p}{Sin^2 q - Sin^2 x}} = -\frac{\pi}{4} l(1 - Sin^2 p + Sin^2 q) - \frac{\pi\, Cos^2 q}{2\, Cos\, p . Sin\, q} \Pi(-Sin^2 \theta, c, q) +$$
$$+ \frac{\pi\, Cos\, p}{2\, Sin\, q} \mathrm{F}(c, q) \text{ V. T. 225, N. 1, 4.}$$

F. Algébr. rat.; Circ. Dir. — **TABLE 225, suite.** — Lim. p et q.

8) $\displaystyle\int \frac{x\, Tg^2 x}{\sqrt{(Sin^2 x - Sin^2 p)(Sin^2 q - Sin^2 x)}}\, dx = \frac{\pi\, Sin\, q}{2\, Cos\, p \,.\, Cos^2 q} \left\{ \mathrm{E}(c, q) - Cot\, q + Cot\, q \,.\, Cos\, q \,.\, Sec\, p \right\}$ (VIII, 310).

9) $\displaystyle\int \frac{x}{Tg^2 x \,.\, \sqrt{(Sin^2 x - Sin^2 p)(Sin^2 q - Sin^2 x)}}\, dx = \frac{\pi}{2\, Sin\, p \,.\, Tg\, p \,.\, Sin\, q} \left\{ \mathrm{E}(c, q) + \frac{Sin\, p - Sin\, q}{Cos\, p} \right\}$ (VIII, 310).

10) $\displaystyle\int \frac{x}{Cos^4 x \,.\, \sqrt{(Sin^2 x - Sin^2 p)(Sin^2 q - Sin^2 x)}}\, dx = \frac{\pi}{12\, Cos^4 p \,.\, Cos^3 q \,.\, Sin\, q} \{ (Cos^2 p + Cos^2 q +$
$+ Cos^2 p \,.\, Cos^2 q)\, 2\, Sin\, 2q - (3\, Cos^2 p + 3\, Cos^2 q + 4\, Cos^2 p \,.\, Cos^2 q + 2\, Cos\, p \,.\, Cos\, q)\, Cos\, p \,.\, Sin\, q +$
$+ (2\, Cos^2 p \,.\, Cos^2 q + Cos^2 p + Cos^2 q - 1)\, 2\, Cos\, p \,.\, Cos\, q \,.\, \mathrm{F}(c, q) + (Cos^2 p + Cos^2 q + Cos^2 p \,.\, Cos^2 q)$
$4\, Cos\, p \,.\, Sin\, q \,.\, Tg\, q \,.\, \mathrm{E}(c, q) \}$ (IV, 347*).

[Partout on a ici $Cos\, \theta = Cos\, q \,.\, Sec\, p$, $c = Sin\, \theta \,.\, Cosec\, q$.]

F. Algébrique; Circ. Dir. — **TABLE 226.** — Limites diverses.

1) $\displaystyle\int_q^\infty Cos\, px \frac{dx}{x} = -\, Ci(pq)$ (VIII, 289).

2) $\displaystyle\int_0^{2a\pi} Cos\, px \,.\, x^b\, dx = -\sum_0^{b-1} \frac{1^{n/1}}{p^{n+1}} \binom{b}{n} (2a\pi)^{b-n}\, Cos\left(\frac{n+1}{2}\pi\right)$ (VIII, 248).

3) $\displaystyle\int_{a\pi}^{c\pi} x\, Cos^{2b} x\, dx = \frac{c^2 - a^2}{2} \pi^2 \frac{1^{b/2}}{2^{b/2}}$ (VIII, 248).

4) $\displaystyle\int_\lambda^{\frac{\pi}{2}} \frac{x\, Cos\, x}{\sqrt{Sin^2 x - Sin^2 \lambda}}\, dx = \frac{\pi}{2}\, l(1 + Cos\, \lambda)$ (IV, 348).

5) $\displaystyle\int_\lambda^{\frac{\pi}{2}} \frac{x\, Cos\, x}{Sin^2 x \,.\, \sqrt{Sin^2 x - Sin^2 \lambda}}\, dx = \frac{\pi}{2}\, Cosec\, \lambda \,.\, \left(1 - Tg \frac{1}{2}\lambda\right)$ (IV, 348).

F. Algébr.; Circ. Dir. } Intégrales Limites. [Lim. $k = 0$]. **TABLE 227.** — Limites diverses.

1) $\displaystyle\int_0^\infty Sin\, kx \frac{dx}{x} = \frac{1}{2}\pi$ (IV, 269).

2) $\displaystyle\int_0^\infty Sin\, x \frac{dx}{x^k} = 1$ (IV, 275).

3) $\displaystyle\int_0^\infty Cos\, x \frac{dx}{x^k} = \frac{1}{2} k\pi$ (IV, 277).

4) $\displaystyle\int_0^\infty Sin\, kx \frac{x\, dx}{1 + x^2} = \frac{1}{2}\pi$ (IV, 282).

5) $\displaystyle\int_0^\infty Sin\{(q+k)x\} \,.\, Cos\{(q-k)x\} \frac{x\, dx}{1 + x^2} = \frac{\pi}{4}(1 + e^{-2q})$ (IV, 282).

6) $\int_0^\infty \frac{Sin\{(q-k)x\}}{Cos\, qx}\frac{dx}{x} = 0$ (IV, 296). 7) $\int_0^\infty \frac{Cos\{(q+k)x\}}{Sin\, qx}\frac{x\,dx}{1+x^2} = \frac{\pi e^{-q}}{e^q - e^{-q}} - \frac{\pi}{2}$ (IV, 297).

8) $\int_0^\infty \frac{Cos\{(q-k)x\}}{Sin\, qx}\frac{x}{1+x^2}dx = \frac{\pi}{2}\frac{e^q + e^{-q}}{e^q - e^{-q}}$ (IV, 297).

9) $\int_0^\infty \frac{Cos\{[(2a+1)q \pm k]x\}}{Sin\, qx}\frac{x}{1+x^2}dx = \pi\frac{e^{-(2a+1)q}}{e^q - e^{-q}} \mp \frac{\pi}{2}$ (IV, 297).

10) $\int_0^\infty \frac{Sin\{(2a+1)qx\}.Sin\, kx}{Sin\, qx}\frac{x}{1+x^2}dx = \frac{\pi}{2}$ (IV, 297).

11) $\int_0^\infty \frac{x\, Sin\, x}{(Cos\, x - q)^2 - k^2}dx = -\frac{\pi}{1+q}$ (IV, 340). 12) $\int_1^q Cos\, kx\frac{dx}{x} = lq$ (VIII, 337).

F. Algébr.; Circ. Dir.} Intégrales Limites. [Lim. $k=\infty$]. TABLE 228. Limites diverses.

1) $\int_0^\infty \frac{Sin\, kx}{1+x}dx = 0$ (IV, 281). 2) $\int_0^\infty \frac{Cos\, kx}{1+x}dx = 0$ (IV, 281).

3) $\int_0^\infty \frac{Sin\{(2k+1)x\}.Tg\, x}{Sin\, x}\frac{x}{p^2+x^2}dx = \infty$ (IV, 299).

4) $\int_0^\infty Sin\{(2k+1)x\}.Tg\, x\frac{dx}{p^2+x^2} = \infty$ (IV, 299).

5) $\int_0^\infty \frac{Cos\, 2kx.Cot\, x}{Sin\, x}\frac{x\,dx}{p^2+x^2} = \infty$ (IV, 299). 6) $\int_0^\infty \frac{Cos\{(2k+1)x\}}{Sin\, x}\frac{x\,dx}{p^2+x^2} = 0$ (IV, 299*).

7) $\int_0^\infty \frac{Sin\{(2k+1)x\}}{Cos\, x}\frac{dx}{p^2+x^2} = 0$ (IV, 299*). 8) $\int_0^\infty \frac{Cos\, 2kx}{Cos\, x}\frac{dx}{p^2+x^2} = 0$ (IV, 299*).

9) $\int_0^\infty Sin\, kx\, dx\sqrt{\frac{x}{x^2-1}} = (Cos\, k + Sin\, k)\sqrt{\frac{\pi}{4k}}$ (IV, 320).

10) $\int_0^\infty Cos\, kx\, dx\sqrt{\frac{x}{x^2-1}} = (Cos\, k - Sin\, k)\sqrt{\frac{\pi}{4k}}$ (IV, 322).

11) $\int_0^\infty \frac{Cos\, kx}{(q+2p\, Cos\, x)^a}dx = \frac{a^{k/1}}{1^{k/1}}(q^2-4p^2)^{-\frac{1}{2}a}\left\{\frac{-4p}{q+\sqrt{q^2-4p^2}}\right\}^k\sqrt{\frac{\pi}{k}}$ (IV, 338).

12) $\int_1^\infty Cos\, kx\frac{dx}{x} = 0$ (IV, 347).

13) $\int_0^a \frac{Sin\{(2k+1)x\}}{Cos\, x}\frac{dx}{p^2+x^2} = 0\left[a<\frac{1}{2}\pi\right], = \infty\left[\frac{1}{2}\pi<a<\infty\right]$ (VIII, 376).

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14) $\int_0^a \frac{Sin\{(2k+1)x\}}{Cos\,x} \frac{x}{p^2+x^2} dx = 0 \left[a<\frac{1}{2}\pi\right], = \infty \left[\frac{1}{2}\pi<a<\infty\right]$ (VIII, 376).

15) $\int_0^a \frac{Sin\{[1\pm(4k+1)]x\}}{Cos\,x} \frac{dx}{p^2+x^2} = \frac{2\pi}{4p^2+\pi^2} \left[a=\frac{1}{2}\pi\right], = \frac{4\pi}{4p^2+\pi^2} \left[\frac{1}{2}\pi<a<\frac{3\pi}{2}\right], =$
$= \frac{4\pi}{4p^2+\pi^2} - \frac{2\pi}{4p^2+9\pi^2} \left[a=\frac{3\pi}{2}\right], = \frac{4\pi}{4p^2+\pi^2} - \frac{4\pi}{4p^2+9\pi^2} + \ldots - \frac{4\pi\,Cos\,b\pi}{4p^2+(2b-1)^2\pi^2} +$
$+ \frac{2\pi\,Cos\,b\pi}{4p^2+(2b+1)^2\pi^2} \left[a=\frac{2b+1}{2}\pi\right], = \frac{4\pi}{4p^2+\pi^2} - \frac{4\pi}{4p^2+9\pi^2} + \ldots + \frac{4\pi\,Cos\,b\pi}{4p^2+(2b+1)^2\pi^2}$
$\left[a=\frac{2b+1}{2}\pi+c,\ c<\pi\right]$ (VIII, 376).

16) $\int_0^a \frac{Sin\{[1\pm(4k+1)]x\}}{Cos\,x} \frac{x}{p^2+x^2} dx = \frac{\pi^2}{4p^2+\pi^2} \left[a=\frac{1}{2}\pi\right], = \frac{2\pi^2}{4p^2+\pi^2} \left[\frac{1}{2}\pi<a<\frac{3\pi}{2}\right], =$
$= \frac{2\pi^2}{4p^2+\pi^2} - \frac{\pi^2}{4p^2+9\pi^2} \left[a=\frac{3\pi}{2}\right], = \frac{2\pi^2}{4p^2+\pi^2} - \frac{2\pi^2}{4p^2+9\pi^2} + \ldots - \frac{2\pi^2\,Cos\,b\pi}{4p^2+(2b-1)^2\pi^2} +$
$+ \frac{\pi^2\,Cos\,b\pi}{4p^2+(2b+1)^2\pi^2} \left[a=\frac{2b+1}{2}\pi\right], = \frac{2\pi^2}{4p^2+\pi^2} - \frac{2\pi^2}{4p^2+9\pi^2} + \ldots + \frac{2\pi^2\,Cos\,b\pi}{4p^2+(2b+1)^2\pi^2}$
$\left[a=\frac{2b+1}{2}\pi+c,\ c<\pi\right]$ (VIII, 377).

17) $\int_0^a Sin\{(2k+1)x\}.Tang\,x \frac{dx}{p^2+x^2} = 0 \left[a<\frac{1}{2}\pi\right], = \infty \left[\frac{1}{2}\pi<a<\infty\right]$ (VIII, 377).

18) $\int_0^a \frac{Cos\,2kx}{Cos\,x} \frac{dx}{p^2+x^2} = 0 \left[a<\frac{1}{2}\pi\right], = \infty \left[\frac{1}{2}\pi<a<\infty\right]$ (VIII, 377).

19) $\int_0^a Sin\{[1\pm(4k+1)]x\}.Tg\,x \frac{dx}{p^2+x^2} = \frac{2\pi}{4p^2+\pi^2} \left[a=\frac{1}{2}\pi\right], = \frac{4\pi}{4p^2+\pi^2} \left[\frac{1}{2}\pi<a<\frac{3\pi}{2}\right], =$
$= \frac{4\pi}{4p^2+\pi^2} + \frac{2\pi}{4p^2+9\pi^2} \left[a=\frac{3\pi}{2}\right], = \frac{4\pi}{4p^2+\pi^2} + \frac{4\pi}{4p^2+9\pi^2} + \ldots + \frac{4\pi}{4p^2+(2b-1)^2\pi^2} +$
$+ \frac{2\pi}{4p^2+(2b+1)^2\pi^2} \left[a=\frac{2b+1}{2}\pi\right], = \frac{4\pi}{4p^2+\pi^2} + \frac{4\pi}{4p^2+9\pi^2} + \ldots + \frac{4\pi}{4p^2+(2b+1)^2\pi^2}$
$\left[a=\frac{2b+1}{2}\pi+c,\ c<\pi\right], = \frac{\pi}{2p} \frac{e^p-e^{-p}}{e^p+e^{-p}} [a=\infty]$ (VIII, 377).

20) $\int_0^a \frac{Cos\{(4k\pm1)x\}}{Cos\,x} \frac{dx}{p^2+x^2} = \frac{\pm2\pi}{4p^2+\pi^2} \left[a=\frac{1}{2}\pi\right], = \frac{\pm4\pi}{4p^2+\pi^2} \left[\frac{1}{2}\pi<a<\frac{3\pi}{2}\right], =$
$= \pm\frac{4\pi}{4p^2+\pi^2} \pm \frac{2\pi}{4p^2+9\pi^2} \left[a=\frac{3\pi}{2}\right], = \pm\left\{\frac{4\pi}{4p^2+\pi^2} + \frac{4\pi}{4p^2+9\pi^2} + \ldots +\right.$

$$+\frac{4\pi}{4p^2+(2b-1)^2\pi^2}+\frac{2\pi}{4p^2+(2b+1)^2\pi^2}\Big\}\left[a=\frac{2b+1}{2}\pi\right], =\pm\Big\{\frac{4\pi}{4p^2+\pi^2}+$$

$$+\frac{4\pi}{4p^2+9\pi^2}+\ldots+\frac{4\pi}{4p^2+(2b+1)^2\pi^2}\Big\}\left[a=\frac{2b+1}{2}\pi+c, c<\pi\right], =$$

$$=\frac{\pi}{2p}\frac{e^p-e^{-p}}{e^p+e^{-p}}[a=\infty] \text{ (VIII, 377).}$$

21) $\int_0^a \frac{Cos\,kx}{Sin\,x}\frac{x}{p^2+x^2}dx=0\left[a<\frac{1}{2}\pi\right], =\infty\left[\frac{1}{2}\pi<a<\infty\right]$ (VIII, 378).

22) $\int_0^a Sin\,kx\frac{dx}{(p^2+x^2)^r}=0=$ 23) $\int Cos\,kx\frac{dx}{(p^2+x^2)^r}[0<a<\infty]$ (VIII, 378).

1) $\int x^{2a} Arcsin\,x\,dx=\frac{1}{2a+1}\left\{\frac{\pi}{2}-\frac{2^{a/2}}{1^{a+1/2}}\right\}$ (VIII, 466).

2) $\int x^{2a-1} Arcsin\,x\,dx=\frac{\pi}{4a}\left\{1-\frac{1^{a/2}}{2^{a/2}}\right\}$ (VIII, 466).

3) $\int (1-x^2)^{a-1}x\,Arcsin\,x\,dx=\frac{\pi}{2^{a+1}a}\frac{1^{a/2}}{1^{a/1}}$ V. T. 8, N. 13.

4) $\int x^{2a} Arccos\,x\,dx=\frac{1}{2a+1}\frac{2^{a/2}}{3^{a/2}}$ V. T. 229, N. 1.

5) $\int x^{2a-1} Arccos\,x\,dx=\frac{\pi}{4a}\frac{1^{a/2}}{2^{a/2}}$ V. T. 229, N. 2.

6) $\int x\,Arctg\,x\,dx=\frac{\pi}{4}-\frac{1}{2}$ V. T. 229, N. 7.

7) $\int x^{p-1} Arctg\,x\,dx=\frac{1}{4p}\left\{\pi+Z'\left(\frac{p+1}{4}\right)-Z'\left(\frac{p+3}{4}\right)\right\}$ V. T. 2, N. 1.

8) $\int x^{p-1} Arccot\,x\,dx=\frac{1}{4p}\left\{\pi+Z'\left(\frac{p+3}{4}\right)-Z'\left(\frac{p+1}{4}\right)\right\}$ V. T. 2, N. 1.

9) $\int x^2 (Arctg\,x)^2\,dx=\frac{1}{3}\left\{-\frac{\pi}{4}l2-\frac{\pi}{2}+\frac{1}{16}\pi^2+1+\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}\right\}$ V. T. 231, N. 21.

1) $\int Arcsin\, x \frac{dx}{x} = \frac{1}{2} \pi\, l\, 2$ (VIII, 594).

2) $\int (Arcsin\, x)^p \frac{dx}{x} = \left(\frac{\pi}{2}\right)^p \left\{1 - \sum_1^\infty \frac{2}{p+2m} \sum_1^\infty \frac{1}{(2n)^{2m}}\right\}$ V. T. 205, N. 7.

3) $\int Arctg\, x \frac{dx}{x} = \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 108, N. 10.

4) $\int Arctg\, x \frac{dx}{x^2} = \infty$ V. T. 78, N. 2.

5) $\int Arctg\, x \frac{x^p - x^{-p}}{x} dx = \frac{\pi}{2p}\left(1 - Sec \frac{1}{2} p\pi\right)$ V. T. 4, N. 7.

6) $\int Arccot\, x \frac{x^p - x^{-p}}{x} dx = \frac{\pi}{2p}\left\{1 + Sec \frac{1}{2} p\pi\right\}$ V. T. 4, N. 7.

7) $\int Arctg\, q x \,.\, Arcsin\, x \frac{dx}{x^2} = \frac{1}{2} q\pi\, l \frac{1+\sqrt{1+q^2}}{\sqrt{1+q^2}} + \frac{\pi}{2} l \{q + \sqrt{1+q^2}\} - \frac{\pi}{2} Arctg\, q$

V. T. 235, N. 10 et T. 244, N. 11.

8) $\int (Arcsin\, x)^2 \frac{dx}{x^2} = -\frac{1}{4}\pi^2 + 4 \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 243, N. 10.

9) $\int (Arcsin\, x)^p \frac{dx}{x^2} = p\left(\frac{\pi}{2}\right)^{p-1} \left[1 + \sum_1^\infty \left\{\frac{1}{4^{m-1}} \frac{2^{2m-1}-1}{p+2m-1} \sum_1^\infty \frac{1}{(2n)^{2m}}\right\}\right] - \left(\frac{\pi}{2}\right)^p$ V. T. 243, N. 14.

10) $\int (Arcsin\, x)^2 \frac{dx}{x^3} = \frac{3}{2}\pi\, l\, 2 - \frac{1}{16}\pi^2$ V. T. 243, N. 13.

11) $\int (Arctg\, x)^2 \frac{dx}{x^2} = -\frac{1}{16}\pi^2 + \frac{1}{4}\pi\, l\, 2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 235, N. 12.

12) $\int (Arctg\, x)^p \frac{dx}{x^2} = -\left(\frac{\pi}{4}\right)^p + \frac{p}{2^{2p-1}} \pi^{p-1} \left\{2 - \sum_1^\infty \frac{4}{p+2m-1} \sum_1^\infty \frac{1}{(4n)^{2m}}\right\}$ V. T. 235, N. 13.

F. Alg. rat. fract. à dén. binôme; Circ. Inv. de x à un fact. mon. TABLE 231. Lim. 0 et 1.

1) $\int Arcsin\, x \frac{x}{1+qx^2} dx = \frac{\pi}{2q} l \frac{2\sqrt{1+q}}{1+\sqrt{1+q}} [q > 0]$ (VIII, 594).

2) $\int Arcsin\, x \frac{x}{1-x^2} dx = \infty$ (VIII, 467).

3) $\int Arcsin\, x \frac{x}{1-p^2x^2} dx = \frac{1}{2p^2}(Arcsin\, p)^2 - \frac{\pi}{4p^2} l(1-p^2)$ (VIII, 466*).

4) $\int Arcsin\, x \frac{x\,dx}{p^2-x^2} = \frac{1}{2}(Arccosec\, p)^2 - \frac{\pi}{4} l \frac{p^2-1}{p^2}$ (VIII, 466*).

5) $\int Arcsin\, x \frac{x}{1-p^2x^4}\,dx = \frac{\pi}{2p} l \frac{\sqrt{1+p}+\sqrt{1-p^2}}{\sqrt{1-p}+\sqrt{1-p^2}}$ V. T. 122, N. 12.

6) $\int Arcsin\, x \frac{x^3}{1-q^2x^4}\,dx = \frac{\pi}{4q^2} l \frac{1+\sqrt{1+q}+\sqrt{1-q}+\sqrt{1-q^2}}{4\sqrt{1-q^2}}$ V. T. 120, N. 16.

7) $\int Arccos\, x \frac{dx}{1+x} = -\frac{1}{2}\pi l 2 + 2\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 231, N. 9, 11.

8) $\int Arccos\, x \frac{dx}{1-x} = \frac{1}{2}\pi l 2 + 2\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 231, N. 9, 11.

9) $\int Arccos\, x \frac{dx}{1-x^2} = 2\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 206, N. 1.

10) $\int Arccos\, x \frac{dx}{Sin^2\lambda - x^2} = 2\, Cosec\,\lambda . \sum_0^\infty \frac{Sin\{(2n+1)\lambda\}}{(2n+1)^2}$ V. T. 207, N. 1.

11) $\int Arccos\, x \frac{x}{1-x^2}\,dx = \frac{1}{2}\pi l 2$ V. T. 120, N. 10.

12) $\int Arccos\, x \frac{x}{1+qx^2}\,dx = \frac{\pi}{2q} l \frac{1+\sqrt{1+q}}{2}$ $[q>0]$ (VIII, 594).

13) $\int Arccos\, x \frac{x}{1-q^2x^4}\,dx = \frac{\pi}{2q} l \frac{1+\sqrt{1+q}}{1+\sqrt{1-q}}$ V. T. 122, N. 12.

14) $\int Arccos\, x \frac{x^3}{1-q^2x^4}\,dx = \frac{\pi}{2q^2} l \frac{1+\sqrt{1+q}+\sqrt{1-q}+\sqrt{1-q^2}}{4}$ V. T. 120, N. 16.

15) $\int Arctg\, x \frac{dx}{1+x} = \frac{1}{8}\pi l 2$ V. T. 114, N. 3.

16) $\int Arctg\left(\frac{\sqrt{p}}{x}\right)\frac{dx}{p+x} = \left\{\frac{\pi}{4}+\frac{1}{2}Arctg(\sqrt{p})\right\}. l\frac{1+p}{p}$ (VIII, 597*).

17) $\int Arctg\,(x\sqrt{p})\frac{dx}{1+px} = \frac{1}{2p}Arctg(\sqrt{p}). l(1+p)$ (VIII, 597*).

18) $\int Arctg\, x \frac{x}{1+x}\,dx = -\frac{\pi}{8} l 2 + \frac{\pi}{4} - \frac{1}{2} l 2$ V. T. 76, N. 3 et T. 231, N. 15.

19) $\int Arctg\, px \frac{dx}{1+p^2x} = \frac{1}{2p^2} Arctg\, p . l(1+p^2)$ (VIII, 597*).

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20) $\int Arctg\, x \frac{x}{1+x^2}\, dx = \frac{1}{2}\sum_0^\infty \frac{(-1)^n}{(2n+1)^2} - \frac{1}{8}\pi\, l2$ V. T. 230, N. 3 et T. 235, N. 12.

21) $\int Arctg\, x \frac{x^3}{1+x^2}\, dx = \frac{\pi}{4} - \frac{1}{2} + \frac{\pi}{8}\, l2 + \frac{1}{2}\sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 229, N. 6 et T. 231, N. 20.

22) $\int Arccot\, x \frac{dx}{1+x} = \frac{3}{8}\pi\, l2$ V. T. 114, N. 3.

23) $\int Arccot\left(\frac{\sqrt{p}}{x}\right) \frac{dx}{p+x} = \frac{1}{2} Arccot(\sqrt{p}) . l\frac{1+p}{p}$ (VIII, 597*).

24) $\int Arccot(x\sqrt{p}) \frac{dx}{1+px} = \frac{1}{p}\left\{\frac{\pi}{4} + \frac{1}{2} Arccot(\sqrt{p})\right\} . l(1+p)$ (VIII, 597*).

25) $\int Arccot\left(\frac{p}{x}\right) \frac{dx}{p^2+x} = \frac{1}{2} Arccot\, p . l\frac{1+p^2}{p^2}$ (VIII, 597*).

26) $\int Arccot\, x \frac{x}{1+x^2}\, dx = \frac{3}{8}\pi\, l2 - \frac{1}{2}\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 248, N. 10 et T. 253, N. 10.

F. Alg. rat. fract. à dén. binôme; Circ. Inv. de x à un fact. bin. TABLE 232. Lim. 0 et 1.

1) $\int \left(x\, Arccot\, x - \frac{1}{x} Arctg\, x\right) \frac{dx}{1-x^2} = -\frac{1}{4}\pi\, l2$ (VIII, 355).

2) $\int \left(\frac{\pi}{4} - Arctg\, x\right) \frac{dx}{1-x} = -\frac{\pi}{8}\, l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 114, N. 17.

3) $\int \left(\frac{\pi}{4} - x\, Arctg\, x\right) \frac{dx}{1-x} = \frac{\pi}{4} - \frac{1}{2}\, l2 - \frac{\pi}{8}\, l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 76, N. 3 et T. 232, N. 2.

4) $\int \left(\frac{\pi}{4} - Arctg\, x\right) \frac{dx}{1-x^2} = \frac{1}{2}\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 115, N. 17.

5) $\int \left(\frac{\pi}{4} - Arctg\, x\right) \frac{x}{1-x^2}\, dx = -\frac{\pi}{8}\, l2 + \frac{1}{2}\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 114, N. 26.

6) $\int \left(\frac{\pi}{4} - x\, Arctg\, x\right) \frac{dx}{1-x^2} = \frac{\pi}{8}\, l2 + \frac{1}{2}\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 231, N. 15 et T. 232, N. 4.

7) $\int \left(\frac{\pi}{4} - x^3\, Arctg\, x\right) \frac{dx}{1-x^2} = \frac{\pi}{4} - \frac{1}{2} + \frac{\pi}{8}\, l2 + \frac{1}{2}\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 229, N. 6 et T. 232, N. 5.

8) $\int \left(\frac{\pi}{4} - x\, Arctg\, x\right) \frac{x\, dx}{1-x^2} = \frac{\pi}{4} - \frac{1}{2}\, l2 - \frac{\pi}{4}\, l2 + \frac{1}{2}\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 231, N. 18 et T. 232, N. 3.

9) $\int\left(\frac{\pi}{4}-x\,Arctg\,x\right)\frac{x}{1+x^2}\,dx=\frac{1}{2}l2+\frac{1}{32}\pi^2-\frac{\pi}{4}+\frac{\pi}{8}l2$ V. T. 76, N. 3.

10) $\int\left(\frac{\pi}{4}-Arctg\,x\right)\frac{x}{1-x^4}\,dx=\frac{\pi}{16}l2$ V. T. 115, N. 20.

11) $\int\left(\frac{\pi}{4}-Arctg\,x\right)\frac{x^3}{1-x^4}\,dx=-\frac{3\pi}{16}l2+\frac{1}{2}\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 114, N. 29.

12) $\int\left(\frac{\pi}{4}-x\,Arctg\,x\right)\frac{dx}{1-x^4}=\frac{\pi^2}{32}+\frac{\pi}{8}l2$ V. T. 231, N. 20 et T. 232, N. 6.

13) $\int\left(\frac{\pi}{4}-x^3Arctg\,x\right)\frac{dx}{1-x^4}=\frac{\pi^2}{32}+\frac{1}{2}\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 229, N. 6, T. 231, N. 20 et T. 232, N. 7.

14) $\int\left(\frac{\pi}{4}-x^5\,Arctg\,x\right)\frac{dx}{1-x^4}=\frac{\pi}{8}l2+\frac{\pi}{4}-\frac{1}{2}+\frac{\pi^2}{32}$ V. T. 76, N. 3 et T. 232, N. 12.

15) $\int\left(\frac{\pi}{4}-x\,Arctg\,x\right)\frac{x}{1-x^4}\,dx=\frac{1}{64}\pi^2-\frac{\pi}{16}l2+\frac{1}{4}\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 232, N. 8, 9.

16) $\int\left(\frac{\pi}{4}-x\,Arctg\,x\right)\frac{x^3}{1-x^4}dx=\frac{\pi}{4}-\frac{1}{2}l2-\frac{1}{64}\pi^2-\frac{3\pi}{16}l2+\frac{1}{4}\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 232, N. 8, 9.

F. Alg. rat. fract. à dén. binôme; Circ. Inv. de x à plus. facteurs. TABLE 233. Lim. 0 et 1.

1) $\int(Arccos\,x)^p\frac{dx}{1+x}=\left(\frac{\pi}{2}\right)^p\sum_1^\infty\left\{\frac{2^{2m}-1}{4^{m-1}}\frac{1}{p+2m}\sum_1^\infty\frac{1}{(2n)^{2m}}\right\}$ V. T. 205, N. 7 et T. 206, N. 3.

2) $\int(Arccos\,x)^p\frac{dx}{1-x}=\left(\frac{\pi}{2}\right)^p\left\{2-\sum_1^\infty\left(\frac{1}{4^{m-1}}\frac{1}{p+2m}\sum_1^\infty\frac{1}{(2n)^{2m}}\right)\right\}$ V. T. 205, N. 7 et T. 206, N. 3.

3) $\int(Arccos\,x)^b\frac{dx}{x\pm q}=-2\,Cos\frac{1}{2}b\pi.1^{b/1}\sum_1^\infty\frac{(\mp c)^n}{n^{b+1}}-2\sum_1^\infty\left\{c^{2n}\sum_0^\infty\binom{b}{2m}(-1)^m\left(\frac{\pi}{2}\right)^{b-2m}\frac{1}{(2n)^{2m+1}}+\right.$

$\left.+c^{2n-1}\sum_0^\infty\binom{b}{2m+1}(-1)^m\left(\frac{\pi}{2}\right)^{b-2m-1}\frac{1}{(2n+1)^{2m+2}}\right\}$ [où $c=q-\sqrt{q^2-1}$]

V. T. 207, N. 7.

4) $\int(Arccos\,x)^p\frac{dx}{1-x^2}=\left(\frac{\pi}{2}\right)^p\left\{1+\sum_1^\infty\left(\frac{1}{4^{m-1}}\frac{2^{2m-1}-1}{p+2m}\sum_1^\infty\frac{1}{(2n)^{2m}}\right)\right\}$ V. T. 206, N. 3.

5) $\int(Arccos\,x)^p\frac{x}{1-x^2}\,dx=\left(\frac{\pi}{2}\right)^p\left\{1-2\sum_1^\infty\left(\frac{1}{p+2m}\sum_1^\infty\frac{1}{(2n)^{2m}}\right)\right\}$ V. T. 205, N. 7.

1) $\int Arcsin\, x \frac{dx}{(x+p)^2} = \frac{-\pi}{2(1+p)} + \frac{1}{\sqrt{1-p^2}} l \frac{1+\sqrt{1-p^2}}{p} \; [p^2 < 1], = \frac{-\pi}{2(1+p)} +$

$+ \frac{1}{\sqrt{p^2-1}} Arcsin \frac{\sqrt{p^2-1}}{p} \; [p^2 > 1]$ (VIII, 593).

2) $\int Arcsin\, x \frac{x}{(1+qx^2)^2} dx = \frac{\pi}{4q} \frac{\sqrt{1+q}-1}{1+q}$ (VIII, 593).

3) $\int Arccos\, x \frac{dx}{(x+p)^2} = \frac{\pi}{2p} + \frac{1}{\sqrt{1-p^2}} l \frac{p}{1+\sqrt{1-p^2}} \; [p^2 < 1], = \frac{\pi}{2p} - \frac{1}{\sqrt{p^2-1}}$

$Arcsin \frac{\sqrt{p^2-1}}{p} \; [p^2 > 1]$ (VIII, 593).

4) $\int Arccos\, x \frac{x}{(1+qx^2)^2} dx = \frac{\pi}{4q} \frac{\sqrt{1+q}-1}{\sqrt{1+q}}$ (VIII, 593).

5) $\int Arccos\, x \frac{x^{2p-1}}{(1-x^2)^{p+1}} dx = \frac{\pi}{4p} Sec\, p\pi \; \left[p < \frac{1}{2}\right]$ V. T. 8, N. 12.

6) $\int (Arccos\, x)^3 \frac{x}{(1-x^2)^2} dx = \frac{3}{2} \pi l 2 - \frac{1}{16} \pi^3$ V. T. 244, N. 9.

7) $\int Arctg\, qx \frac{dx}{(1+px)^2} = \frac{1}{2} \frac{q}{p^2+q^2} l \frac{(1+p)^2}{1+q^2} + \frac{q^2-p}{(1+p)(p^2+q^2)} Arctg\, q$ (VIII, 597*).

8) $\int Arctg\, x \frac{2+x}{(1+x)^2} x\, dx = \frac{1}{4}\pi - \frac{3}{4} l 2$ V. T. 2, N. 11.

9) $\int Arctg\, x \frac{2p-1-(2p-3)x^2}{(1+x^2)^{2p-1}} x^{2p-2} dx = \frac{\pi}{2^{2p}} - \frac{\{\Gamma(p)\}^2}{4\Gamma(2p)}$ V. T. 4, N. 16.

10) $\int Arccot\, qx \frac{dx}{(1+px)^2} = \frac{1}{2} \frac{q}{p^2+q^2} l \frac{1+q^2}{(1+p)^2} + \frac{p}{p^2+q^2} Arctg\, q + \frac{1}{1+p} Arccot\, q$ (VIII, 597).

11) $\int Arccot\, x \frac{2+x}{(1+x)^2} x\, dx = \frac{3}{4} l 2$ V. T. 2, N. 11.

12) $\int Arccot\, x \frac{x}{(1+x^2)^2} dx = \frac{1}{16} \left\{\pi + 2 + Z'\left(\frac{3}{4}\right) - Z'\left(\frac{5}{4}\right)\right\}$ V. T. 3, N. 11.

1) $\int Arcsin\, x \frac{x}{Cos^2\lambda + x^2 Sin^2\lambda} \frac{dx}{Cos^2\mu + x^2 Sin^2\mu} = \frac{\pi}{Sin(\lambda-\mu) . Sin(\lambda+\mu)}\, l\left(Cos\frac{1}{2}\mu . Sec\frac{1}{2}\lambda\right)$
V. T. 122, N. 11.

2) $\int Arcsin\, x \frac{x}{1-x^2 Sin^2\lambda} \frac{dx}{1-x^2 Sin^2\mu} = \frac{\pi}{Sin^2\lambda - Sin^2\mu}\, l\frac{Cos\frac{1}{2}\lambda . \sqrt{Cos\mu}}{Cos\frac{1}{2}\mu . \sqrt{Cos\lambda}}$ V. T. 122, N. 11.

3) $\int Arccos\, x \frac{x}{Cos^2\lambda + x^2 Sin^2\lambda} \frac{dx}{Cos^2\mu + x^2 Sin^2\mu} = \frac{1}{2} \frac{\pi}{Sin(\lambda+\mu) . Sin(\lambda-\mu)}\, l\frac{1+Sec\lambda}{1+Sec\mu}$
V. T. 122, N. 11.

4) $\int Arccos\, x \frac{x}{1-x^2 Sin^2\lambda} \frac{dx}{1-x^2 Sin^2\mu} = \frac{\pi}{Sin^2\lambda - Sin^2\mu}\, l\frac{Cos\frac{1}{2}\mu}{Cos\frac{1}{2}\lambda}$ V. T. 122, N. 11.

5) $\int Arctg\, px \frac{3-p^2+(1-3p^2)p^2x^2}{(1-p^4x^2)(1-p^4x^4)} dx = \frac{1}{2p} Arctg\, p . l\frac{1+p^2}{1-p^2}$ $[p^2<1]$ (VIII, 597*).

6) $\int Arctg\frac{x}{p} \frac{(3p^2-1)p^2-(p^2-3)x^2}{(p^4-x^2)(p^4-x^4)} dx = \frac{1}{2p^2} Arccot\, p . l\frac{p^2+1}{p^2-1}$ $[p^2>1]$ (VIII, 598*).

7) $\int Arccot\, px \frac{3-p^2+(1-3p^2)p^2x^2}{(1-p^4x^2)(1-p^4x^4)} dx = \frac{\pi}{4p} l(1+p^2) + \frac{1}{2p} Arccot\, p . l\frac{1+p^2}{1-p^2}$ $[p^2<1]$
(VIII, 597*).

8) $\int Arccot\frac{x}{p} \cdot \frac{(3p^2-1)p^2-(p^2-3)x^2}{(p^4-x^2)(p^4-x^4)} dx = \frac{\pi}{2p^2} l\frac{1+p^2}{p^2} + \frac{1}{2p^2} Arctg\, p . l\frac{p^2+1}{p^2-1}$ $[p^2>1]$
(VIII, 598*).

9) $\int Arcsin\, x \frac{dx}{x(1-x^2)} = \infty$ (IV, 353).

10) $\int Arcsin\, x \frac{dx}{x(1+qx^2)} = \frac{\pi}{2} l\frac{1+\sqrt{1+q}}{\sqrt{1+q}}$ V. T. 230, N. 1 et T. 231, N. 1.

11) $\int Arctg\, x \frac{dx}{x(1+x)} = -\frac{\pi}{8} l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 115, N. 3.

12) $\int Arctg\, x \frac{dx}{x(1+x^2)} = \frac{\pi}{8} l2 + \frac{1}{2} \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 204, N. 2.

13) $\int (Arctg\, x)^p \frac{dx}{x(1+x^2)} = \frac{\pi^p}{2^{2p}} \left\{1 - \sum_1^\infty \frac{2}{p+2m} \sum_1^\infty \frac{1}{(4n)^{2m}}\right\}$ V. T. 204, N. 6.

14) $\int Arcsin\, x \frac{x}{\frac{1}{2}(p+1)-x^2} dx = -\frac{\pi}{4} l\{2(1-p)\}$ $[p^2<1]$, $= \frac{\pi}{4} l\frac{p+\sqrt{p^2-1}}{2(p-1)}$ $[p^2>1]$
V. T. 219, N. 4.

15) $\int Arcsin\, x \frac{x}{(1-p)^2+4px^2}dx = \frac{\pi}{8p}l(1+p)\,[p^2<1], = \frac{\pi}{8p}l\frac{1+p}{p}\,[p^2>1]$ V. T. 221, N. 2.

16) $\int Arcsin\, x \frac{dx}{1+2px+p^2} = \frac{1}{2p}\left\{\pi\, l(1+p) - \sum_0^\infty \frac{1}{2n+1}\frac{2^{n/2}}{3^{n/2}}\left(\frac{2p}{1+p^2}\right)^{2n+1}\right\}$ V. T. 121, N. 1.

17) $\int Arccos\, x \frac{x}{(1+p)^2-4px^2}dx = \frac{\pi}{8p}l(1+p)\,[p^2<1], = \frac{\pi}{8p}l\frac{1+p}{p}\,[p^2>1]$ V. T. 221, N. 2.

18) $\int Arccos\, x \frac{x}{\frac{1}{2}(1+p)-x^2}dx = \frac{\pi}{4}l\{2(1+p)\}\,[p^2<1], = \frac{\pi}{4}l\frac{2(1+p)}{p+\sqrt{p^2-1}}\,[p^2>1]$

V. T. 219, N. 4.

19) $\int Arccos\, x \frac{dx}{1+2px+p^2} = \frac{1}{2p}\left\{-\frac{\pi}{2}l(1+p^2) + \sum_0^\infty \frac{1}{2n+1}\frac{2^{n/2}}{3^{n/2}}\left(\frac{2p}{1+p^2}\right)^{2n+1}\right\}$ V. T. 121, N. 1.

20) $\int Arctg\, x \frac{1-2x-x^2}{1+x}\frac{dx}{1+x^2} = \frac{3\pi}{8}l2 + \sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 115, N. 18.

21) $\int Arctg\, x \frac{1-x}{1+x}\frac{dx}{1+x^2} = \frac{\pi}{4}l2 + \frac{1}{2}\sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 231, N. 20 et T. 235, N. 20.

22) $\int Arctg\, x \frac{1-x^3}{x(1+x)}\frac{dx}{1+x^2} = \frac{1}{2}\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 231, N. 20 et T. 235, N. 11, 20.

23) $\int Arctg\, x \frac{1+2x-x^2}{x(1+x)}\frac{dx}{1+x^2} = \frac{3\pi}{8}l2$ V. T. 230, N. 3 et T. 235, N. 20.

24) $\int \left(\frac{\pi}{4} - Arctg\, x\right)\frac{1+2x-x^2}{1-x}\frac{dx}{1+x^2} = \frac{3\pi}{8}l2$ V. T. 115, N. 19.

25) $\int \left(\frac{\pi}{4} - Arctg\, x\right)\frac{1+x}{1-x}\frac{dx}{1+x^2} = \frac{\pi}{8}l2 + \frac{1}{2}\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 232, N. 2 et T. 235, N. 24.

F. Alg. irrat. ent.; Circ. Inv. de x. TABLE 236. Lim. 0 et 1.

1) $\int Arcsin\, x . x\, dx \sqrt{1-p^2x^2} = \frac{1}{9p^2}\left[-\frac{3}{2}\pi\sqrt{1-p^2}^3 - (1-p^2)F'(p) + 2(2-p^2)E'(p)\right]$

V. T. 209, N. 1.

2) $\int Arcsin\, x . x^3\, dx \sqrt{1-p^2x^2} = \frac{1}{225p^4}\left[-15(2+3p^2)\frac{\pi}{2}\sqrt{1-p^2}^3 - (1+12p^2)(1-p^2)F'(p) + \right.$

$\left. + (31+19p^2-24p^4)E'(p)\right]$ V. T. 209, N. 5.

3) $\int Arcsin\, x . x^5\, dx \sqrt{1-p^2 x^2} = \frac{1}{11025 p^6}\left[-105(8+12p^2+15p^4)\frac{\pi}{2}\sqrt{1-p^2}^3 + \right.$
$\left. +(62-111p^2-360p^4)(1-p^2)F'(p)+2(389+176p^2+204p^4-360p^6)E'(p)\right]$

V. T. 209, N. 8.

4) $\int Arcsin\, x . x^7\, dx \sqrt{1-p^2 x^2} = \frac{1}{99225 p^8}\left[-315(16+24p^2+30p^4+35p^6)\frac{\pi}{2}\sqrt{1-p^2}^3 + \right.$
$+(652-141p^2-900p^4-2240p^6)(1-p^2)F'(p)+(4388+1727p^2+1503p^4+$
$\left. +2120p^6-4480p^8)E'(p)\right]$ V. T. 209, N. 10.

5) $\int Arcsin\, x . x\, dx \sqrt{1-p^2+p^2 x^2} = \frac{1}{9p^2}\left[\frac{3\pi}{2}+(1-p^2)F'(p)-2(2-p^2)E'(p)\right]$

V. T. 209, N. 11.

6) $\int Arcsin\, x . x^3\, dx \sqrt{1-p^2+p^2 x^2} = \frac{1}{225 p^4}\left[-15(2-5p^2)\frac{\pi}{2}-(1-13p^2)(1-p^2)F'(p)+\right.$
$\left. +(31-81p^2+26p^4)E'(p)\right]$ V. T. 209, N. 15.

7) $\int Arcsin\, x . x^5\, dx \sqrt{1-p^2+p^2 x^2} = \frac{1}{11025 p^6}\left[105(8-28p^2+35p^4)\frac{\pi}{2}-(62-13p^2-\right.$
$\left. -409p^4)(1-p^2)F'(p)-2(389-1343p^2+1723p^4-409p^6)E'(p)\right]$ V. T. 209, N. 18.

8) $\int Arcsin\, x . x^7\, dx \sqrt{1-p^2+p^2 x^2} = \frac{1}{99225 p^8}\left[-315(16-72p^2+126p^4-105p^6)\frac{\pi}{2}+\right.$
$+(652-1815p^2+774p^4+2629p^6)(1-p^2)F'(p)+(4388-19279p^2+33012p^4-$
$\left. -27859p^6+5258p^8)E'(p)\right]$ V. T. 209, N. 20.

9) $\int Arccos\, x . x\, dx \sqrt{1-p^2 x^2} = \frac{1}{9p^2}\left[\frac{3\pi}{2}+(1-p^2)F'(p)-2(2-p^2)E'(p)\right]$ V. T. 209, N. 11.

10) $\int Arccos\, x . x^3\, dx \sqrt{1-p^2 x^2} = \frac{1}{225 p^4}\left[15\pi+(1+12p^2)(1-p^2)F'(p)-\right.$
$\left. -(31+19p^2-24p^4)E'(p)\right]$ V. T. 209, N. 12.

11) $\int Arccos\quad x^5\, dx \sqrt{1-p^2 x^2} = \frac{1}{11025 p^6}[420\pi-(62-111p^2-360p^4)(1-p^2)F'(p)-$
$-2(389+176p^2+204p^4-360p^6)E'(p)]$ V. T. 209, N. 13.

12) $\int Arccos\,x\,.\,x^7\,dx\,\sqrt{1-p^2x^2} = \frac{1}{99225p^8}[280\pi-(652-141p^2-900p^4-2240p^6)(1-p^2)$ $F'(p)-(4388+1727p^2+1503p^4+2120p^6-4480p^8)E'(p)]$ V. T. 209, N. 14.

13) $\int Arccos\,x\,.\,x\,dx\,\sqrt{1-p^2+p^2x^2} = \frac{1}{9p^2}\left[-\frac{3\pi}{2}\sqrt{1-p^2}^3-(1-p^2)F'(p)+2(2-p^2)E'(p)\right]$ V. T. 209, N. 1.

14) $\int Arccos\,x\,.\,x^3\,dx\,\sqrt{1-p^2+p^2x^2} = \frac{1}{225p^4}[15\pi\sqrt{1-p^2}^5+(1-13p^2)(1-p^2)F'(p)-$ $-(31-81p^2+26p^4)E'(p)]$ V. T. 209, N. 2.

15) $\int Arccos\,x\,.\,x^5\,dx\,\sqrt{1-p^2+p^2x^2} = \frac{1}{11025p^6}[-420\pi\sqrt{1-p^2}^7+(62-13p^2-409p^4)$ $(1-p^2)F'(p)+2(389-1343p^2+1723p^4-409p^6)E'(p)]$ V. T. 209, N. 3.

16) $\int Arccos\,x\,.\,x^7\,dx\,\sqrt{1-p^2+p^2x^2} = \frac{1}{99225p^8}[2520\pi\sqrt{1-p^2}^9-(652-1815p^2+774p^4+$ $+2629p^6)(1-p^2)F'(p)-(4388-19279p^2+33012p^4-27859p^6+5258p^8)E'(p)]$ V. T. 209, N. 4.

F. Alg. irrat. fract. à dén. $\sqrt{1-p^2x^2}$; Circ. Inv. *Arcsin* x. TABLE 237. Lim. 0 et 1.

1) $\int Arcsin\,x\,\frac{x\,dx}{\sqrt{1-p^2x^2}} = \frac{1}{p^2}\left[-\frac{\pi}{2}\sqrt{1-p^2}+E'(p)\right]$ V. T. 211, N. 1.

2) $\int Arcsin\,x\,\frac{x^3\,dx}{\sqrt{1-p^2x^2}} = \frac{1}{9p^4}\left[-3(2+p^2)\frac{\pi}{2}\sqrt{1-p^2}+(1-p^2)F'(p)+(5+2p^2)E'(p)\right]$ V. T. 211, N. 5.

3) $\int Arcsin\,x\,\frac{x^5\,dx}{\sqrt{1-p^2x^2}} = \frac{1}{225p^6}\left[-15(8+4p^2+3p^4)\frac{\pi}{2}\sqrt{1-p^2}+2(13+6p^2)(1-p^2)\right.$ $\left.F'(p)+(94+31p^2+24p^4)E'(p)\right]$ V. T. 211, N. 8.

4) $\int Arcsin\,x\,\frac{x^7\,dx}{\sqrt{1-p^2x^2}} = \frac{1}{3675p^8}\left[-105(16+8p^2+6p^4+5p^6)\frac{\pi}{2}\sqrt{1-p^2}+(404+233p^2+\right.$ $\left.+120p^4)(1-p^2)F'(p)+(1276+389p^2+256p^4+240p^6)E'(p)\right]$ V. T. 211, N. 10.

5) $\int Arcsin\, x \frac{dx}{\sqrt{1-p^2x^2}^3} = \frac{\pi}{2\sqrt[4]{1-p^2}} - \frac{1}{2p} l \frac{1+p}{1-p}$ V. T. 211, N. 26.

6) $\int Arcsin\, x \frac{x\,dx}{\sqrt{1-p^2x^2}^3} = \frac{1}{p^2}\left[\frac{\pi}{2\sqrt{1-p^2}} - F'(p)\right]$ V. T. 211, N. 14.

7) $\int Arcsin\, x \frac{x^3\,dx}{\sqrt{1-p^2x^2}^3} = \frac{1}{p^4}\left[(2-p^2)\frac{\pi}{2\sqrt{1-p^2}} - F'(p) - E'(p)\right]$ V. T. 211, N. 18.

8) $\int Arcsin\, x \frac{x^5\,dx}{\sqrt{1-p^2x^2}^3} = \frac{1}{9p^6}\left[3(8-4p^2-p^4)\frac{\pi}{2\sqrt{1-p^2}} - (10-p^2)F'(p) - 2(7+p^2)E'(p)\right]$

V. T. 211, N. 21.

9) $\int Arcsin\, x \frac{x^7\,dx}{\sqrt{1-p^2x^2}^3} = \frac{1}{75p^8}\left[15(16-8p^2-2p^4-p^6)\frac{\pi}{2\sqrt{1-p^2}} - (92-13p^2-4p^4)F'(p) - \right.$

$\left. -(148+27p^2+8p^4)E'(p)\right]$ V. T. 211, N. 23.

10) $\int Arcsin\, x \frac{dx}{\sqrt{1-p^2x^2}^5} = \frac{1}{3(1-p^2)}\left[(3-2p^2)\frac{\pi}{2\sqrt{1-p^2}} - 1 - \frac{1-p^2}{p} l \frac{1+p}{1-p}\right]$

V. T. 212, N. 17.

11) $\int Arcsin\, x \frac{x\,dx}{\sqrt{1-p^2x^2}^5} = \frac{1}{3p^2(1-p^2)}\left[\frac{\pi}{2\sqrt{1-p^2}} - E'(p)\right]$ V. T. 212, N. 2.

12) $\int Arcsin\, x \frac{x^2\,dx}{\sqrt{1-p^2x^2}^5} = \frac{1}{6p^2(1-p^2)}\left[\frac{p^2\pi}{\sqrt{1-p^2}} - 2 + \frac{1-p^2}{p} l \frac{1+p}{1-p}\right]$ V. T. 212, N. 7.

13) $\int Arcsin\, x \frac{x^3\,dx}{\sqrt{1-p^2x^2}^5} = \frac{1}{3p^4(1-p^2)}\left[-(2-3p^2)\frac{\pi}{2\sqrt{1-p^2}} + 3(1-p^2)F'(p) - E'(p)\right]$

V. T. 212, N. 9.

14) $\int Arcsin\, x \frac{x^5\,dx}{\sqrt{1-p^2x^2}^5} = \frac{1}{3p^6(1-p^2)}\left[-(8-12p^2+3p^4)\frac{\pi}{2\sqrt{1-p^2}} + 6(1-p^2)F'(p) + \right.$

$\left. +(2-3p^2)E'(p)\right]$ V. T. 212, N. 12.

15) $\int Arcsin\, x \frac{x^7\,dx}{\sqrt{1-p^2x^2}^5} = \frac{1}{9p^8(1-p^2)}\left[-3(16-24p^2+6p^4+p^6)\frac{\pi}{2\sqrt{1-p^2}} + \right.$

$\left. +(28-p^2)(1-p^2)F'(p) + (20-21p^2-2p^4)E'(p)\right]$ V. T. 212, N. 14.

16) $\int Arcsin\, x . x\,dx \sqrt{\frac{1-x^2}{(1-p^2x^2)^5}} = \frac{1}{3p^2(1-p^2)}\left[-\sqrt{1-p^2} + \frac{1}{p} Arcsin\, p\right]$ V. T. 212, N. 3.

17) $\int Arcsin\,x \dfrac{dx}{\sqrt{1-p^2x^2}^{\,7}} = \dfrac{1}{15(1-p^2)^2}\left[(15-20p^2+8p^4)\dfrac{\pi}{2\sqrt{1-p^2}} - (7-5p^2) - 4\dfrac{(1-p^2)^2}{p}\, l\dfrac{1+p}{1-p}\right]$ V. T. 213, N. 20.

18) $\int Arcsin\,x \dfrac{x\,dx}{\sqrt{1-p^2x^2}^{\,7}} = \dfrac{1}{15p^2(1-p^2)^2}\left[\dfrac{3\pi}{2\sqrt{1-p^2}} + (1-p^2)F'(p) - 2(2-p^2)E'(p)\right]$ V. T. 213, N. 2.

19) $\int Arcsin\,x \dfrac{x^2\,dx}{\sqrt{1-p^2x^2}^{\,7}} = \dfrac{1}{15p^2(1-p^2)^2}\left[(5-2p^2)\dfrac{p^2\pi}{2\sqrt{1-p^2}} - 2 + \dfrac{(1-p^2)^2}{p}\, l\dfrac{1+p}{1-p}\right]$ V. T. 213, N. 8.

20) $\int Arcsin\,x \dfrac{x^3\,dx}{\sqrt{1-p^2x^2}^{\,7}} = \dfrac{1}{15p^4(1-p^2)^2}\left[-(2-5p^2)\dfrac{\pi}{2\sqrt{1-p^2}} + (1-p^2)F'(p) + (1-3p^2)E'(p)\right]$ V. T. 213, N. 11.

21) $\int Arcsin\,x \dfrac{x^4\,dx}{\sqrt{1-p^2x^2}^{\,7}} = \dfrac{1}{30p^4(1-p^2)^2}\left[\dfrac{3p^4\pi}{\sqrt{1-p^2}} + 2(3-5p^2) - 3\dfrac{(1-p^2)^2}{p}\, l\dfrac{1+p}{1-p}\right]$ V. T. 213, N. 15.

22) $\int Arcsin\,x \dfrac{x^5\,dx}{\sqrt{1-p^2x^2}^{\,7}} = \dfrac{1}{15p^6(1-p^2)^2}\left[(8-20p^2+15p^4)\dfrac{\pi}{2\sqrt{1-p^2}} - (14-15p^2)\right.$ $\left.(1-p^2)F'(p) + 2(3-4p^2)E'(p)\right]$ V. T. 213, N. 17.

23) $\int Arcsin\,x \dfrac{x^7\,dx}{\sqrt{1-p^2x^2}^{\,7}} = \dfrac{1}{15p^8(1-p^2)^2}\left[3(16-40p^2+30p^4-5p^6)\dfrac{\pi}{2\sqrt{1-p^2}} - (44-45p^2)(1-p^2)F'(p) - (4-17p^2+15p^4)E'(p)\right]$ V. T. 213, N. 19.

24) $\int Arcsin\,x\,.\,x\,dx\sqrt{\dfrac{1-x^2}{(1-p^2x^2)^7}} = \dfrac{1}{15p^4(1-p^2)^2}\left[(1-2p^2)\sqrt{1-p^2}^{\,3} - \dfrac{1-3p^2}{p}\, Arcsin\,p\right]$ V. T. 213, N. 3.

25) $\int Arcsin\,x\,.\,x^3\,dx\sqrt{\dfrac{1-x^2}{(1-p^2x^2)^7}} = \dfrac{1}{30p^6(1-p^2)^2}\left[-(3-11p^2)\sqrt{1-p^2}^{\,3} + (3-5p^2)(1-3p^2)\dfrac{1}{p}\, Arcsin\,p\right]$ V. T. 213, N. 12.

26) $\int Arcsin\,x\,.\,x\,dx\sqrt{\dfrac{(1-x^2)^3}{(1-p^2x^2)^7}} = \dfrac{1}{30p^6(1-p^2)}\left[(3-9p^2-4p^4)\sqrt{1-p^2} - \dfrac{3}{p}(1-3p^2)\, Arcsin\,p\right]$ V. T. 213, N. 5.

1) $\int Arcsin\, x \frac{x\,dx}{\sqrt{1-p^2+p^2x^2}} = \frac{1}{p^2}\left[\frac{\pi}{2} - E'(p)\right]$ V. T. 214, N. 1.

2) $\int Arcsin\, x \frac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}} = \frac{1}{9p^4}\left[-3(2-3p^2)\frac{\pi}{2} + (1-p^2)F'(p) + (5-7p^2)E'(p)\right]$
V. T. 214, N. 5.

3) $\int Arcsin\, x \frac{x^5\,dx}{\sqrt{1-p^2+p^2x^2}} = \frac{1}{225p^6}\left[15(8-20p^2+15p^4)\frac{\pi}{2} - 2(13-19p^2)(1-p^2)F'(p) - \right.$
$\left. -(94-219p^2+149p^4)E'(p)\right]$ V. T. 214, N. 8.

4) $\int Arcsin\, x \frac{x^7\,dx}{\sqrt{1-p^2+p^2x^2}} = \frac{1}{3675p^8}\left[-105(16-56p^2+70p^4-35p^6)\frac{\pi}{2} + \right.$
$\left. +(404-1041p^2+757p^4)(1-p^2)F'(p) + (1276-4217p^2+4862p^4-2161p^6)E'(p)\right]$
V. T. 214, N. 10.

5) $\int Arcsin\, x \frac{x\,dx}{\sqrt{1-p^2+p^2x^2}^3} = \frac{1}{p^2}\left[-\frac{\pi}{2} + F'(p)\right]$ (VIII, 593).

6) $\int Arcsin\, x \frac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}^3} = \frac{1}{p^4}\left[(2-p^2)\frac{\pi}{2} - (1-p^2)F'(p) - E'(p)\right]$ V. T. 214, N. 18.

7) $\int Arcsin\, x \frac{x^5\,dx}{\sqrt{1-p^2+p^2x^2}^3} = \frac{1}{9p^6}\left[-3(8-12p^2+3p^4)\frac{\pi}{2} + (10-9p^2)(1-p^2)F'(p) + \right.$
$\left. +2(7-8p^2)E'(p)\right]$ V. T. 214, N. 21.

8) $\int Arcsin\, x \frac{x^7\,dx}{\sqrt{1-p^2+p^2x^2}^3} = \frac{1}{75p^8}\left[15(16-40p^2+30p^4-5p^6)\frac{\pi}{2} - (92-171p^2+75p^4)\right.$
$\left. (1-p^2)F'(p) - (148-323p^2+183p^4)E'(p)\right]$ V. T. 214, N. 23.

9) $\int Arcsin\, x \frac{dx}{\sqrt{1-p^2+p^2x^2}^5} = \frac{1}{3(1-p^2)^2}\left[\frac{\pi}{2}(3-p^2) - \sqrt{1-p^2} - \frac{2}{p} Arcsin\, p\right]$
V. T. 215, N. 17.

10) $\int Arcsin\, x \frac{x\,dx}{\sqrt{1-p^2+p^2x^2}^5} = \frac{1}{3p^2(1-p^2)}\left[-(1-p^2)\frac{\pi}{2} + E'(p)\right]$ V. T. 215, N. 2.

11) $\int Arcsin\, x \frac{x^2\,dx}{\sqrt{1-p^2+p^2x^2}^5} = \frac{1}{3p^2(1-p^2)}\left[\frac{1}{2}p^2\pi + \sqrt{1-p^2} - \frac{1}{p} Arcsin\, p\right]$
V. T. 215, N. 7.

12) $\int Arcsin\, x \frac{x^3\, dx}{\sqrt{1-p^2+p^2x^2}^5} = \frac{1}{3p^4}\left[-(2+p^2)\frac{\pi}{2} + 3\,\mathrm{F}'(p) - \mathrm{E}'(p)\right]$ V. T. 215, N. 9.

13) $\int Arcsin\, x \frac{x^5\, dx}{\sqrt{1-p^2+p^2x^2}^5} = \frac{1}{3p^6}\left[(8-4p^2-p^4)\frac{\pi}{2} - 6(1-p^2)\mathrm{F}'(p) - (2+p^2)\mathrm{E}'(p)\right]$ V. T. 215, N. 12.

14) $\int Arcsin\, x \frac{x^7\, dx}{\sqrt{1-p^2+p^2x^2}^5} = \frac{1}{9p^8}\left[-3(16-24p^2+6p^4+p^6)\frac{\pi}{2} + (28-27p^2)(1-p^2)\mathrm{F}'(p) + (20-19p^2-3p^4)\mathrm{E}'(p)\right]$ V. T. 215, N. 14.

15) $\int Arcsin\, x \,.\, x\, dx \sqrt{\frac{1-x^2}{(1-p^2+p^2x^2)^5}} = \frac{1}{6p^2}\left[\frac{2}{1-p^2} - \frac{1}{p}\, l\frac{1+p}{1-p}\right]$ V. T. 215, N. 8.

16) $\int Arcsin\, x \frac{dx}{\sqrt{1-p^2+p^2x^2}^7} = \frac{1}{15p^2(1-p^2)^3}\left[p^2(7-6p^2+3p^4)\frac{\pi}{2} - (4+3p^2-2p^4)\sqrt{1-p^2} + 4\frac{1-3p^2}{p} Arcsin\, p\right]$ V. T. 216, N. 20.

17) $\int Arcsin\, x \frac{x\, dx}{\sqrt{1-p^2+p^2x^2}^7} = \frac{1}{15p^2(1-p^2)^2}\left[3(1-p^2)^2\frac{\pi}{2} - (1-p^2)\mathrm{F}'(p) + 2(2-p^2)\mathrm{E}'(p)\right]$ V. T. 216, N. 2.

18) $\int Arcsin\, x \frac{x^2\, dx}{\sqrt{1-p^2+p^2x^2}^7} = \frac{1}{15p^4(1-p^2)^2}\left[-p^2(2-6p^2+3p^4)\frac{\pi}{2} - (1-2p^2)\sqrt{1-p^2}^3 + \frac{1-3p^2}{p} Arcsin\, p\right]$ V. T. 216, N. 8.

19) $\int Arcsin\, x \frac{x^3\, dx}{\sqrt{1-p^2+p^2x^2}^7} = \frac{1}{15p^4(1-p^2)}\left[-(2+3p^2)(1-p^2)\frac{\pi}{2} + (1-p^2)\mathrm{F}'(p) + (1+2p^2)\mathrm{E}'(p)\right]$ V. T. 216, N. 11.

20) $\int Arcsin\, x \frac{x^4\, dx}{\sqrt{1-p^2+p^2x^2}^7} = \frac{1}{30p^6(1-p^2)}\left[-3p^2(7-11p^2+3p^4)\frac{\pi}{2} - (3-9p^2-4p^4)\sqrt{1-p^2} + 3(1-2p^2)\frac{1}{p} Arcsin\, p\right]$ V. T. 216, N. 15.

21) $\int Arcsin\, x \frac{x^5\, dx}{\sqrt{1-p^2+p^2x^2}^7} = \frac{1}{15p^6}\left[-(8+4p^2+3p^4)\frac{\pi}{2} + (14+p^2)\mathrm{F}'(p) - 2(3+p^2)\mathrm{E}'(p)\right]$ V. T. 216, N. 17.

22) $$\int Arcsin\,x \frac{x^7\,dx}{\sqrt{1-p^2+p^2x^2}^7} = \frac{1}{15p^8}\Big[3(16-8p^2-2p^4-p^6)\frac{\pi}{2}-(44+p^2)(1-p^2)\mathrm{F}'(p)- -(4+9p^2+2p^4)\mathrm{E}'(p)\Big]$$ V. T. 216, N. 19.

23) $$\int Arcsin\,x\,.\,x\,dx\sqrt{\frac{1-x^2}{(1-p^2+p^2x^2)^7}} = \frac{1}{15p^2}\Big[\frac{2}{(1-p^2)^2}-\frac{1}{p}\,l\frac{1+p}{1-p}\Big]$$ V. T. 216, N. 3.

24) $$\int Arcsin\,x\,.\,x^3\,dx\sqrt{\frac{1-x^2}{(1-p^2+p^2x^2)^7}} = \frac{1}{30p^6}\Big[\frac{6}{1-p^2}-\frac{3+2p^2}{p}\,l\frac{1+p}{1-p}\Big]$$ V. T. 216, N. 12.

25) $$\int Arcsin\,x\,.\,x\,dx\sqrt{\frac{(1-x^2)^3}{(1-p^2+p^2x^2)^7}} = \frac{1}{30p^4}\Big[-2\frac{3-5p^2}{(1-p^2)^2}+\frac{3}{p}\,l\frac{1+p}{1-p}\Big]$$ V. T. 216, N. 5.

F. Alg. irrat. fract. à dén. composé; Circ. Inv. *Arcsin x*. TABLE 239. Lim. 0 et 1.

1) $$\int Arcsin\,px \frac{x\,dx}{\sqrt{(1-x^2)(1-p^2x^2)}} = -\frac{\pi}{4p}\,l(1-p^2)$$ Bronwin, Math. 2, 297.

2) $$\int Arcsin\,x \frac{x\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}} = \frac{1}{p(1-p^2)}Arcsin\,p$$ V. T. 211, N. 13.

3) $$\int Arcsin\,x \frac{x\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}} = \frac{1}{3(1-p^2)^2}\Big[\sqrt{1-p^2}+\frac{2}{p}Arcsin\,p\Big]$$ V. T. 212, N. 1.

4) $$\int Arcsin\,x \frac{x^3\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}} = \frac{1}{3p^2(1-p^2)^2}\Big[\sqrt{1-p^2}-\frac{1-3p^2}{p}Arcsin\,p\Big]$$ V. T. 212, N. 8.

5) $$\int Arcsin\,x \frac{x\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^7}} = \frac{1}{15p^2(1-p^2)^3}\Big[(4+3p^2-2p^4)\sqrt{1-p^2}- -4\frac{1-3p^2}{p}Arcsin\,p\Big]$$ V. T. 213, N. 1.

6) $$\int Arcsin\,x \frac{x^3\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^7}} = \frac{1}{15p^4(1-p^2)^3}\Big[-(1-8p^2+2p^4)\sqrt{1-p^2}+ +(1-5p^2)(1-3p^2)\frac{1}{p}Arcsin\,p\Big]$$ V. T. 213, N. 10.

7) $$\int Arcsin\,x \frac{x^5\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^7}} = \frac{1}{30p^6(1-p^2)^3}\Big[(3-19p^2+41p^4-15p^6)\sqrt{1-p^2}+ +(3-10p^2+15p^4)(1-3p^2)\frac{1}{p}Arcsin\,p\Big]$$ V. T. 213, N. 16.

8) $\int Arcsin\,x \frac{x\,dx}{\sqrt{(1-x^2)(1-p^2+p^2x^2)^3}} = \frac{1}{2p} l \frac{1+p}{1-p}$ V. T. 214, N. 13.

9) $\int Arcsin\,x \frac{x\,dx}{\sqrt{(1-x^2)(1-p^2+p^2x^2)^5}} = \frac{1}{3}\left[\frac{1}{1-p^2} + \frac{1}{p} l \frac{1+p}{1-p}\right]$ V. T. 215, N. 1.

10) $\int Arcsin\,x \frac{x^3\,dx}{\sqrt{(1-x^2)(1-p^2+p^2x^2)^5}} = \frac{1}{6p^2}\left[-2 + \frac{1+2p^2}{p} l \frac{1+p}{1-p}\right]$ V. T. 215, N. 8.

11) $\int Arcsin\,x \frac{x\,dx}{\sqrt{(1-x^2)(1-p^2+p^2x^2)^7}} = \frac{1}{15}\left[\frac{7-5p^2}{(1-p^2)^2} + \frac{4}{p} l \frac{1+p}{1-p}\right]$ V. T. 216, N. 1.

12) $\int Arcsin\,x \frac{x^3\,dx}{\sqrt{(1-x^2)(1-p^2+p^2x^2)^7}} = \frac{1}{15p^2}\left[-\frac{2-5p^2}{1-p^2} + \frac{1+4p^2}{p} l \frac{1+p}{1-p}\right]$

V. T. 216, N. 10.

13) $\int Arcsin\,x \frac{x^5\,dx}{\sqrt{(1-x^2)(1-p^2+p^2x^2)^7}} = \frac{1}{30p^4}\left[-2(3+5p^2) + (3+4p^2+8p^4)\frac{1}{p} l \frac{1+p}{1-p}\right]$

V. T. 216, N. 16.

F. Alg. irrat. fract. à dén. $\sqrt{1-p^2x^2}$; Circ. Inv. *Arccos x*. TABLE 240. Lim. 0 et 1.

1) $\int Arccos\,x \frac{x\,dx}{\sqrt{1-p^2x^2}} = \frac{1}{p}\left[\frac{\pi}{2} - E'(p)\right]$ V. T. 214, N. 1.

2) $\int Arccos\,x \frac{x^3\,dx}{\sqrt{1-p^2x^2}} = \frac{1}{9p^4}[3\pi - (1-p^2)F'(p) - (5+2p^2)E'(p)]$ V. T. 214, N. 2.

3) $\int Arccos\,x \frac{x^5\,dx}{\sqrt{1-p^2x^2}} = \frac{1}{225p^6}[60\pi - 2(13+6p^2)(1-p^2)F'(p) - (94+31p^2+24p^4)E'(p)]$

V. T. 214, N. 3.

4) $\int Arccos\,x \frac{x^7\,dx}{\sqrt{1-p^2x^2}} = \frac{1}{3675p^8}[840\pi - (414+233p^2+120p^4)(1-p^2)F'(p) -$

$- (1276+389p^2+256p^4+240p^6)E'(p)]$ V. T. 214, N. 4.

5) $\int Arccos\,x \frac{dx}{\sqrt{1-p^2x^2}^3} = \frac{1}{2p} l \frac{1+p}{1-p}$ V. T. 214, N. 13.

6) $\int Arccos\,x \frac{x\,dx}{\sqrt{1-p^2x^2}^3} = \frac{1}{p^2}\left[-\frac{\pi}{2} + F'(p)\right]$ V. T. 214, N. 14.

7) $\int Arccos\,x \frac{x^3\,dx}{\sqrt{1-p^2x^2}^3} = \frac{1}{p^4}[-\pi + F'(p) + E'(p)]$ V. T. 214, N. 15.

8) $\int Arccos\, x \frac{x^5\, dx}{\sqrt{1-p^2x^2}^3} = \frac{1}{9p^6}[-12\pi-(10-p^2)F'(p)+2(7+p^2)E'(p)]$ V. T. 214, N. 16.

9) $\int Arccos\, x \frac{x^7\, dx}{\sqrt{1-p^2x^2}^3} = \frac{1}{75p^8}[-120\pi+(92-13p^2-4p^4)F'(p)+(148+27p^2+8p^4)E'(p)]$
V. T. 214, N. 17.

10) $\int Arccos\, x \frac{dx}{\sqrt{1-p^2x^2}^5} = \frac{1}{3}\left[\frac{1}{1-p^2}+\frac{1}{p}\, l\frac{1+p}{1-p}\right]$ V. T. 215, N. 1.

11) $\int Arccos\, x \frac{x\, dx}{\sqrt{1-p^2x^2}^5} = \frac{1}{3p^2(1-p^2)}\left[-(1-p^2)\frac{\pi}{2}+E'(p)\right]$ V. T. 215, N. 2.

12) $\int Arccos\, x \frac{x^2\, dx}{\sqrt{1-p^2x^2}^5} = \frac{1}{6p^2}\left[\frac{2}{1-p^2}-\frac{1}{p}\, l\frac{1+p}{1-p}\right]$ V. T. 215, N. 3.

13) $\int Arccos\, x \frac{x^3\, dx}{\sqrt{1-p^2x^2}^5} = \frac{1}{3p^4(1-p^2)}[(1-p^2)\pi-3(1-p^2)F'(p)+E'(p)]$ V. T. 215, N. 4.

14) $\int Arccos\, x \frac{x^5\, dx}{\sqrt{1-p^2x^2}^5} = \frac{1}{3p^6(1-p^2)}[4(1-p^2)\pi-6(1-p^2)F'(p)-(2-3p^2)E'(p)]$
V. T. 215, N. 5.

15) $\int Arccos\, x \frac{x^7\, dx}{\sqrt{1-p^2x^2}^5} = \frac{1}{9p^8(1-p^2)}[24(1-p^2)\pi-(28-p^2)(1-p^2)F'(p)-$
$-(20-21p^2-2p^4)E'(p)]$ V. T. 215, N. 6.

16) $\int Arccos\, x\,.\,x\,dx\sqrt{\frac{1-x^2}{(1-p^2x^2)^5}} = \frac{1}{3p^2(1-p^2)}\left[\frac{1}{2}p^2\pi+\sqrt{1-p^2}-\frac{1}{p}\,Arcsin\, p\right]$
V. T. 215, N. 7.

17) $\int Arccos\, x \frac{dx}{\sqrt{1-p^2x^2}^7} = \frac{1}{15}\left[\frac{7-5p^2}{(1-p^2)^2}+\frac{4}{p}\, l\frac{1+p}{1-p}\right]$ V. T. 216, N. 1.

18) $\int Arccos\, x \frac{x\, dx}{\sqrt{1-p^2x^2}^7} = \frac{1}{15p^2(1-p^2)^2}\left[3(1-p^2)^2\frac{\pi}{2}-(1-p^2)F'(p)+2(2-p^2)E'(p)\right]$
V. T. 216, N. 2.

19) $\int Arccos\, x \frac{x^2\, dx}{\sqrt{1-p^2x^2}^7} = \frac{1}{15p^2}\left[\frac{2}{(1-p^2)^2}-\frac{1}{p}\, l\frac{1+p}{1-p}\right]$ V. T. 216, N. 3.

20) $\int Arccos\, x \frac{x^3\, dx}{\sqrt{1-p^2x^2}^7} = \frac{1}{15p^4(1-p^2)^2}[(1-p^2)^2\pi-(1-p^2)F'(p)-(1-3p^2)E'(p)]$
V. T. 216, N. 4.

21) $\int Arccos\, x \frac{x^4\, dx}{\sqrt{1-p^2x^2}^7} = \frac{1}{30p^4}\left[-2\frac{3-5p^2}{(1-p^2)^2}+\frac{3}{p}\, l\frac{1+p}{1-p}\right]$ V. T. 216, N. 5.

22) $\int Arccos\, x \frac{x^5\, dx}{\sqrt{1-p^2x^2}^7} = \frac{1}{15p^6(1-p^2)^2}\left[-4(1-p^2)^2\pi + (14-15p^2)(1-p^2)F'(p) - \right.$
$\left. - 2(3-4p^2)E'(p)\right]$ V. T. 216, N. 6.

23) $\int Arccos\, x \frac{x^7\, dx}{\sqrt{1-p^2x^2}^7} = \frac{1}{15p^8(1-p^2)^2}\left[-24(1-p^2)^2\pi + (44-45p^2)(1-p^2)F'(p) + \right.$
$\left. + (4-17p^2+15p^4)E'(p)\right]$ V. T. 216, N. 7.

24) $\int Arccos\, x\,.\,x\, dx \sqrt{\frac{1-x^2}{(1-p^2x^2)^7}} = \frac{1}{15p^4(1-p^2)^2}\left[-p^2(2-6p^2+3p^4)\frac{\pi}{2} - (1-2p^2)\right.$
$\left.\sqrt{1-p^2}^3 + \frac{1-3p^2}{p} Arcsin\, p\right]$ V. T. 216, N. 8.

25) $\int Arccos\, x\,.\,x^3\, dx \sqrt{\frac{1-x^2}{(1-p^2x^2)^7}} = \frac{1}{30p^6(1-p^2)^2}\left[p^2(21-58p^2+54p^4-15p^6)\frac{\pi}{2} + \right.$
$\left. + (3-11p^2)\sqrt{1-p^2}^3 - (3-5p^2)(1-3p^2)\frac{1}{p} Arcsin\, p\right]$ V. T. 216, N. 9.

26) $\int Arccos\, x\,.\,x\, dx \sqrt{\frac{(1-x^2)^3}{(1-p^2x^2)^7}} = \frac{1}{30p^6(1-p^2)}\left[-3p^2(7-11p^2+3p^4)\frac{\pi}{2} - \right.$
$\left. - (3-9p^2-4p^4)\sqrt{1-p^2} + \frac{3}{p}(1-3p^2) Arcsin\, p\right]$ V. T. 216, N. 15.

F. Alg. irrat. fract. à dén. $\sqrt{1-p^2+p^2x^2}$; Circ. Inv. *Arccos x.* TABLE 241. Lim. 0 et 1.

1) $\int Arccos\, x \frac{x\, dx}{\sqrt{1-p^2+p^2x^2}} = \frac{1}{p^2}\left[-\frac{\pi}{2}\sqrt{1-p^2} + E'(p)\right]$ V. T. 211, N, 1.

2) $\int Arccos\, x \frac{x^3\, dx}{\sqrt{1-p^2+p^2x^2}} = \frac{1}{9p^4}\left[3\pi\sqrt{1-p^2}^3 - (1-p^2)F'(p) - (5-7p^2)E'(p)\right]$
V. T. 211, N. 2.

3) $\int Arccos\, x \frac{x^5\, dx}{\sqrt{1-p^2+p^2x^2}} = \frac{1}{225p^6}\left[-60\pi\sqrt{1-p^2}^5 + 2(13-19p^2)(1-p^2)F'(p) + \right.$
$\left. + (94-219p^2+149p^4)E'(p)\right]$ V. T. 211, N. 3.

4) $\int Arccos\, x \frac{x^7\, dx}{\sqrt{1-p^2+p^2x^2}} = \frac{1}{3675p^8}\left[840\pi\sqrt{1-p^2}^7 - (404-1041p^2+757p^4)(1-p^2)\right.$
$\left. F'(p) - (1276-4217p^2+4862p^4-2161p^6)E'(p)\right]$ V. T. 211, N. 4.

5) $\int Arccos\, x \frac{dx}{\sqrt{1-p^2+p^2x^2}^3} = \frac{1}{p(1-p^2)} Arcsin\, p$ V. T. 211, N. 13.

6) $\int Arccos\, x \frac{x\,dx}{\sqrt{1-p^2+p^2x^2}^3} = \frac{1}{p^2}\left\{-\frac{\pi}{2\sqrt{1-p^2}} + F'(p)\right\}$ (VIII, 593).

7) $\int Arccos\, x \frac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}^3} = \frac{1}{p^4}\left[-\pi\sqrt{1-p^2} + (1-p^2)F'(p) + E'(p)\right]$ V. T. 211, N. 15.

8) $\int Arccos\, x \frac{x^5\,dx}{\sqrt{1-p^2+p^2x^2}^3} = \frac{1}{9p^6}\left[12\pi\sqrt{1-p^2}^3 - (10-9p^2)(1-p^2)F'(p) - 2(7-8p^2)E'(p)\right]$ V. T. 211, N. 16.

9) $\int Arccos\, x \frac{x^7\,dx}{\sqrt{1-p^2+p^2x^2}^3} = \frac{1}{75p^8}\left[-120\pi\sqrt{1-p^2}^5 + (92-171p^2+75p^4)(1-p^2)F'(p) + (148-323p^2+183p^4)E'(p)\right]$ V. T. 211, N. 17.

10) $\int Arccos\, x \frac{dx}{\sqrt{1-p^2+p^2x^2}^5} = \frac{1}{3(1-p^2)^2}\left[\sqrt{1-p^2} + \frac{2}{p} Arcsin\, p\right]$ V. T. 212, N. 1.

11) $\int Arccos\, x \frac{x\,dx}{\sqrt{1-p^2+p^2x^2}^5} = \frac{1}{3p^2(1-p^2)}\left[\frac{\pi}{2\sqrt{1-p^2}} - E'(p)\right]$ V. T. 212, N. 2.

12) $\int Arccos\, x \frac{x^2\,dx}{\sqrt{1-p^2+p^2x^2}^5} = \frac{1}{3p^2(1-p^2)}\left[-\sqrt{1-p^2} + \frac{1}{p} Arcsin\, p\right]$ V. T. 212, N. 3.

13) $\int Arccos\, x \frac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}^5} = \frac{1}{3p^4}\left[\frac{\pi}{\sqrt{1-p^2}} - 3F'(p) + E'(p)\right]$ V. T. 212, N. 4.

14) $\int Arccos\, x \frac{x^5\,dx}{\sqrt{1-p^2+p^2x^2}^5} = \frac{1}{3p^6}\left[-4\pi\sqrt{1-p^2} + 6(1-p^2)F'(p) + (2+p^2)E'(p)\right]$ V. T. 212, N. 5.

15) $\int Arccos\, x \frac{x^7\,dx}{\sqrt{1-p^2+p^2x^2}^5} = \frac{1}{9p^8}\left[24\pi\sqrt{1-p^2}^3 - (28-27p^2)(1-p^2)F'(p) - (20-19p^2-3p^4)E'(p)\right]$ V. T. 212, N. 6.

16) $\int Arccos\, x . x\,dx \sqrt{\frac{1-x^2}{(1-p^2+p^2x^2)^5}} = \frac{1}{6p^2(1-p^2)}\left[\frac{p^2\pi}{\sqrt{1-p^2}} - 2 + \frac{1-p^2}{p}\, l\frac{1+p}{1-p}\right]$ V. T. 212, N. 7.

17) $\int Arccos\, x \frac{dx}{\sqrt{1-p^2+p^2x^2}^7} = \frac{1}{15p^2(1-p^2)^3}\left[(4+3p^2-2p^4)\sqrt{1-p^2} - 4\frac{1-3p^2}{p} Arcsin\, p\right]$ V. T. 213, N. 1.

18) $\int Arccos\, x \frac{x\,dx}{\sqrt{1-p^2+p^2x^2}^7} = \frac{1}{15p^2(1-p^2)^2}\left[\frac{3\pi}{2\sqrt{1-p^2}} + (1-p^2)F'(p) - 2(2-p^2)E'(p)\right]$ V. T. 213, N. 2.

19) $\int Arccos\, x \frac{x^2\,dx}{\sqrt{1-p^2+p^2x^2}^7} = \frac{1}{15p^4(1-p^2)^2}\left[(1-2p^2)\sqrt{1-p^2}^3 - \frac{1-3p^2}{p} Arcsin\, p\right]$ V. T. 213, N. 3.

20) $\int Arccos\, x \frac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}^7} = \frac{1}{15p^4(1-p^2)}\left[\frac{\pi}{\sqrt{1-p^2}} - (1-p^2)F'(p) - (1+2p^2)E'(p)\right]$ V. T. 213, N. 4.

21) $\int Arccos\, x \frac{x^4\,dx}{\sqrt{1-p^2+p^2x^2}^7} = \frac{1}{30p^6(1-p^2)}\left[(3-9p^2-4p^4)\sqrt{1-p^2} - \frac{3}{p}(1-3p^2) Arcsin\, p\right]$ V. T. 213, N. 5.

22) $\int Arccos\, x \frac{x^5\,dx}{\sqrt{1-p^2+p^2x^2}^7} = \frac{1}{15p^6}\left[\frac{4\pi}{\sqrt{1-p^2}} - (14+p^2)F'(p) + 2(3+p^2)E'(p)\right]$ V. T. 213, N. 6.

23) $\int Arccos\, x \frac{x^7\,dx}{\sqrt{1-p^2+p^2x^2}^7} = \frac{1}{15p^8}[-24\pi\sqrt{1-p^2} + (44+p^2)(1-p^2)F'(p) +$
$+ (4+9p^2+2p^4)E'(p)]$ V. T. 213, N. 7.

24) $\int Arccos\, x \,.\, x\,dx \sqrt{\frac{1-x^2}{(1-p^2+p^2x^2)^7}} = \frac{1}{15p^2(1-p^2)^2}\left[2(5-2p^2)\frac{p^2\pi}{\sqrt{1-p^2}} -\right.$
$\left. -2 + \frac{(1-p^2)^2}{p}\, l\frac{1+p}{1-p}\right]$ V. T. 213, N. 8.

25) $\int Arccos\, x \,.\, x^3\,dx \sqrt{\frac{1-x^2}{(1-p^2+p^2x^2)^7}} = \frac{1}{30p^4(1-p^2)}\left[2\frac{p^4\pi}{\sqrt{1-p^2}} - 6 + (3+2p^2)\right.$
$\left.\frac{1-p^2}{p}\, l\frac{1+p}{1-p}\right]$ V. T. 213, N. 9.

26) $\int Arccos\, x \,.\, x\,dx \sqrt{\frac{(1-x^2)^3}{(1-p^2+p^2x^2)^7}} = \frac{1}{30p^4(1-p^2)^2}\left[\frac{3p^4\pi}{\sqrt{1-p^2}} + 2(3-5p^2) -\right.$
$\left. -3\frac{(1-p^2)^2}{p}\, l\frac{1+p}{1-p}\right]$ V. T. 213, N. 15.

1) $\int Arccos\,px \frac{x\,dx}{\sqrt{(1-x^2)(1-p^2x^2)}} = \frac{\pi}{2p} l(1+p)$ V. T. 12, N. 8 et T. 239, N. 1.

2) $\int Arccos\,x \frac{x\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}} = \frac{1}{1-p^2}\left[\frac{\pi}{2} - \frac{1}{p} Arcsin\,p\right]$ V. T. 214, N. 26.

3) $\int Arccos\,x \frac{x\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}} = \frac{1}{3(1-p^2)^2}\left[(3-p^2)\frac{\pi}{2} - \sqrt{1-p^2} - \frac{2}{p} Arcsin\,p\right]$

V. T. 215, N. 17.

4) $\int Arccos\,x \frac{x^3\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}} = \frac{1}{3p^2(1-p^2)^2}\left[p^2\pi - \sqrt{1-p^2} + \frac{1-3p^2}{p} Arcsin\,p\right]$

V. T. 215, N. 18.

5) $\int Arccos\,x \frac{x\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^7}} = \frac{1}{15p^2(1-p^2)^3}\left[p^2(7-6p^2+3p^4)\frac{\pi}{2} - (4+3p^2-2p^4)\right.$

$\left.\sqrt{1-p^2} + 4\frac{1-3p^2}{p} Arcsin\,p\right]$ V. T. 216, N. 20.

6) $\int Arccos\,x \frac{x^3\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^7}} = \frac{1}{15p^4(1-p^2)^3}\left[p^4(2-p^2+3p^4)\frac{\pi}{2} + (1-8p^2+2p^4)\right.$

$\left.\sqrt{1-p^2} - (1-5p^2)(1-3p^2)\frac{1}{p} Arcsin\,p\right]$ V. T. 216, N. 21.

7) $\int Arccos\,x \frac{x^5\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^7}} = \frac{1}{30p^6(1-p^2)^3}\left[-p^2(21-83p^2+114p^4-83p^6+15p^8)\frac{\pi}{2} - \right.$

$\left. -(3-19p^2+41p^4-15p^6)\sqrt{1-p^2} + (3-10p^2+15p^4)(1-3p^2)\frac{1}{p} Arcsin\,p\right]$

V. T. 216, N. 22.

8) $\int Arccos\,x \frac{x\,dx}{\sqrt{(1-x^2)(1-p^2+p^2x^2)^3}} = \frac{\pi}{2\sqrt{1-p^2}} - \frac{1}{2p} l\frac{1+p}{1-p}$ V. T. 211, N. 26.

9) $\int Arccos\,x \frac{x\,dx}{\sqrt{(1-x^2)(1-p^2+p^2x^2)^5}} = \frac{1}{3(1-p^2)}\left[(3-2p^2)\frac{\pi}{2\sqrt{1-p^2}} - \right.$

$\left. -1 - \frac{1-p^2}{p} l\frac{1+p}{1-p}\right]$ V. T. 212, N. 17.

10) $\int Arccos\,x \frac{x^3\,dx}{\sqrt{(1-x^2)(1-p^2+p^2x^2)^5}} = \frac{1}{6p^2}\left[\frac{2p^2\pi}{\sqrt{1-p^2}} + 2 - \frac{1+2p^2}{p} l\frac{1+p}{1-p}\right]$

V. T. 212, N. 18.

11) $\int Arccos\, x \frac{x\, dx}{\sqrt{(1-x^2)(1-p^2+p^2x^2)^7}} = \frac{1}{15(1-p^2)^2}\left[(15-20p^2+8p^4)\frac{\pi}{2\sqrt{1-p^2}} - \right.$

$\left. -(7-5p^2) - 4\frac{(1-p^2)^2}{p}\, l\frac{1+p}{1-p}\right]$ V. T. 213, N. 20.

12) $\int Arccos\, x \frac{x^2\, dx}{\sqrt{(1-x^2)(1-p^2+p^2x^2)^7}} = \frac{1}{15p^2(1-p^2)}\left[(5-4p^2)\frac{p^2\pi}{\sqrt{1-p^2}} + (2-5p^2) - \right.$

$\left. -(1+4p^2)\frac{1-p^2}{p}\, l\frac{1+p}{1-p}\right]$ V. T. 213, N. 21.

13) $\int Arccos\, x \frac{x^3\, dx}{\sqrt{(1-x^2)(1-p^2+p^2x^2)^7}} = \frac{1}{30p^4}\left[8\frac{p^4\pi}{\sqrt{1-p^2}} + 2(3+5p^2) - \right.$

$\left. -\frac{3+4p^2+8p^4}{p}\, l\frac{1+p}{1-p}\right]$ V. T. 213, N. 22.

G. Alg. irrat. fract. à dén. d'autre forme; Circ. Inv. *Arcsin x*. TABLE 243. Lim. 0 et 1.

1) $\int Arcsin\, x \frac{dx}{\sqrt[3]{x}} = \frac{3}{2}\left\{\frac{\pi}{2} - 3\sqrt[4]{3}.E'\left(Sin\frac{\pi}{12}\right) + \frac{3+3\sqrt{3}}{2\sqrt[4]{3}}F'\left(Sin\frac{\pi}{12}\right)\right\}$ V. T. 8, N. 23.

2) $\int Arcsin\, x \frac{dx}{\sqrt[3]{x^2}} = 3\left\{\frac{\pi}{2} + \frac{\sqrt{3}-1}{\sqrt[4]{3}}F'\left(Cos\frac{\pi}{12}\right) - 2\sqrt[4]{3}.E'\left(Cos\frac{\pi}{12}\right)\right\}$ V. T. 8, N. 22.

3) $\int Arcsin\, x \frac{dx}{x\sqrt[3]{x}} = \sqrt[4]{27}.F'\left(Cos\frac{\pi}{12}\right) - \frac{3}{2}\pi$ V. T. 10, N. 5.

4) $\int Arcsin\, x \frac{dx}{x\sqrt[3]{x^2}} = \frac{3}{2}\sqrt[4]{27}.F'\left(Sin\frac{\pi}{12}\right) - \frac{3}{4}\pi$ V. T. 10, N. 6.

5) $\int Arcsin\, x \frac{dx}{\sqrt{p+qx^2}^3} = \frac{1}{q\sqrt{p+q}}\left[4F\left(\frac{\pi}{4}, \sqrt{\frac{2q}{p+q}}\right) - \pi\right]$ (VIII, 593).

6) $\int Arcsin\, x \frac{dx}{\sqrt{p-qx^2}^3} = \frac{1}{q}\left[\frac{\pi}{\sqrt{p-q}} - \frac{4}{\sqrt{p+q}}\left\{F'\left(\sqrt{\frac{2q}{p+q}}\right) - F\left(\frac{\pi}{4}, \sqrt{\frac{2q}{p+q}}\right)\right\}\right]$ $[p>q]$

(VIII, 594).

7) $\int Arcsin\, x \frac{x\, dx}{\sqrt{1+x^2}^3} = -\frac{\pi}{4}\sqrt{2} + \frac{1}{2}\sqrt{2}.F'\left(Sin\frac{\pi}{4}\right)$ V. T. 9, N. 8.

8) $\int Arcsin\, x \frac{dx}{\sqrt{p^2+x^2}^3} = \frac{1}{p^2}\left(\frac{1}{2p}\pi - Arccot\, p\right)$ V. T. 12, N. 6.

9) $\int Arcsin\, x \dfrac{x\,dx}{\sqrt{q^2-p^2x^2}^3} = \dfrac{\pi}{2p^2\sqrt{q^2-p^2}} - \dfrac{1}{p^2 q} F'\left(\dfrac{p}{q}\right)$ V. T. 12, N. 28.

10) $\int Arcsin\, x \dfrac{dx}{x\sqrt{1-x^2}} = 2\sum_0^\infty \dfrac{(-1)^n}{(2n+1)^2}$ V. T. 206, N. 1.

11) $\int Arcsin\, x \dfrac{x}{x^2 - Cos^2\lambda} \dfrac{dx}{\sqrt{1-x^2}} = 2\, Cosec\,\lambda . \sum_0^\infty \dfrac{Sin\{(2n+1)\lambda\}}{(2n+1)^2}$ V. T. 207, N. 1.

12) $\int \dfrac{Arcsin\, x . \sqrt{1-x^2} - x}{x^3} \dfrac{dx}{\sqrt{1-x^2}} = -\dfrac{1}{4}\pi$ V. T. 206, N. 9.

13) $\int (Arcsin\, x)^2 \dfrac{dx}{x^2\sqrt{1-x^2}} = \pi\, l2$ V. T. 206, N. 5.

14) $\int (Arcsin\, x)^p \dfrac{dx}{x\sqrt{1-x^2}} = \left(\dfrac{\pi}{2}\right)^p \left\{1 + \sum_1^\infty \dfrac{1}{4^{n-1}} \dfrac{2^{2n-1}-1}{p+2n} \sum_1^\infty \dfrac{1}{(2m)^{2n}}\right\}$ V. T. 206, N. 3.

F. Alg. irrat. fract. à dén. d'autre forme; Circ. Inv. de x, d'autre forme. TABLE 244. Lim. 0 et 1.

1) $\int Arccos\, x \dfrac{dx}{\sqrt[3]{x}} = \dfrac{3}{2}\left\{3\sqrt[4]{3} . E'\left(Sin\dfrac{\pi}{12}\right) - \dfrac{3+3\sqrt{3}}{2\sqrt[4]{3}} F'\left(Sin\dfrac{\pi}{12}\right)\right\}$ V. T. 8, N. 23.

2) $\int Arccos\, x \dfrac{dx}{\sqrt[3]{x^2}} = 3\left\{\dfrac{1-\sqrt{3}}{\sqrt[4]{3}} F'\left(Cos\dfrac{\pi}{12}\right) + 2\sqrt[4]{3} . E'\left(Cos\dfrac{\pi}{12}\right)\right\}$ V. T. 8, N. 22.

3) $\int Arccos\, x \dfrac{dx}{\sqrt{p+qx^2}^3} = \dfrac{1}{q}\left\{\dfrac{\pi}{\sqrt{p}} - \dfrac{4}{\sqrt{p+q}} F\left(\dfrac{\pi}{4}, \sqrt{\dfrac{2q}{p+q}}\right)\right\}$ (VIII, 594).

4) $\int Arccos\, x \dfrac{dx}{\sqrt{p-qx^2}^3} = \dfrac{1}{q}\left[\dfrac{4}{\sqrt{p+q}}\left\{F'\left(\sqrt{\dfrac{2q}{p+q}}\right) - F\left(\dfrac{\pi}{4}, \sqrt{\dfrac{2q}{p+q}}\right)\right\} - \dfrac{\pi}{\sqrt{p}}\right]$ (VIII, 594).

5) $\int Arccos\, x \dfrac{x\,dx}{\sqrt{1+x^2}^3} = \dfrac{\pi}{2} - \dfrac{1}{2}\sqrt{2} . F'\left(Sin\dfrac{\pi}{4}\right)$ V. T. 9, N. 8.

6) $\int Arccos\, x \dfrac{x\,dx}{\sqrt{q^2-p^2x^2}^3} = \dfrac{1}{p^2 q} F'\left(\dfrac{p}{q}\right) - \dfrac{\pi}{2p^2 q}$ V. T. 12, N. 28.

7) $\int Arccos\, x \dfrac{dx}{\sqrt{p^2+x^2}^3} = \dfrac{1}{p^2} Arccot\, p$ V. T. 12, N. 6.

8) $\int \dfrac{x\, Arccos\, x - \sqrt{1-x^2}}{(1-x^2)^2} dx = -\dfrac{1}{4}\pi$ V. T. 206, N. 9.

*9) $\int (Arccos\, x)^2 \dfrac{dx}{\sqrt{1-x^2}^3} = \pi\, l2$ V. T. 206, N. 5.

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10) $\int Arctg\, x \frac{1-x}{x} \frac{dx}{\sqrt{x}} = \pi(\sqrt{2}-1)$ V. T. 10, N. 1.

11) $\int Arctg\, qx \frac{dx}{x\sqrt{1-x^2}} = \frac{1}{2}\pi\, l\{q+\sqrt{1+q^2}\}$ (VIII, 354).

12) $\int Arctg\, x \frac{x^3\, dx}{\sqrt{1-x^4}} = \sqrt{2}.\left\{F'\left(Sin\frac{\pi}{4}\right)-E'\left(Sin\frac{\pi}{4}\right)\right\}$ V. T. 8, N. 27.

13) $\int Arctg\, x \frac{x}{\sqrt{1-x^2}} \frac{dx}{Tg^2\lambda+x^2} = \frac{1}{2}\pi Cos\lambda . l\left\{Cos\left(\frac{\pi-4\lambda}{8}\right).Cosec\left(\frac{\pi+4\lambda}{8}\right)\right\}$ V. T. 115, N. 30.

14) $\int Arctg\, x \frac{x\, dx}{\sqrt{(1+x^2)(1+x^2-p^2x^2)^3}} = \frac{1}{p^2}\left\{F\left(p,\frac{\pi}{4}\right)-\frac{\pi}{2\sqrt{2(2-p^2)}}\right\}$ (VIII, 596).

15) $\int Arccot\, x \frac{x^3\, dx}{\sqrt{1-x^4}} = \frac{\pi}{4}+\sqrt{2}.\left\{E'\left(Sin\frac{\pi}{4}\right)-F'\left(Sin\frac{\pi}{4}\right)\right\}$ V. T. 8, N. 27.

16) $\int Arccot\, x \frac{x\, dx}{\sqrt{(1+x^2-p^2x^2)^3(1+x^2)}} = \frac{1}{p^2}\left\{\frac{\pi}{2}-\frac{\pi}{2\sqrt{2(2-p^2)}}-F\left(p,\frac{\pi}{4}\right)\right\}$ (VIII, 596).

F. Algébr. fract.; Circ. Inv. d'autre forme. TABLE 245. Lim. 0 et 1.

1) $\int Arcsin.((q\{2x-1\}))\frac{dx}{x^2-(1-x)^2} = 0$ (VIII, 260*).

2) $\int Arcsin\, ((q\{2x-1\}))\frac{dx}{x^2+(1-x)^2} = \frac{1}{2}\alpha\pi^2$ (VIII, 260*).

3) $\int Arcsin\, \{q(2x-1)\}\frac{dx}{x^2+(1-x)^2} = 0$ (VIII, 261*).

4) $\int Arccos\, ((q\{2x-1\}))\frac{dx}{x^2-(1-x)^2} = 0$ (VIII, 260*).

5) $\int Arccos\, ((q\{2x-1\}))\frac{dx}{x^2+(1-x)^2} = \frac{1}{4}(2\alpha+1)\pi^2$ (VIII, 260*).

6) $\int Arccos\, \{q(2x-1)\}\frac{dx}{x^2+(1-x)^2} = \frac{1}{4}\pi^2$ (VIII, 261*).

7) $\int Arctg\left(\frac{2px}{1+x^2}\right)\frac{dx}{x} = \frac{1}{2}\pi\, l\{p+\sqrt{1+p^2}\}$ V. T. 244, N. 11.

8) $\int Arctg\{\sqrt{1-x}\}\frac{dx}{(1-xCos^2\lambda)\sqrt{x}} = \frac{2\pi}{Cos\lambda}\, l\left\{Cos\left(\frac{\pi-4\lambda}{8}\right).Cosec\left(\frac{\pi+4\lambda}{8}\right)\right\}$ V. T. 122, N. 5.

9) $\int Arctg\{\sqrt{1-x^2}\}\frac{dx}{1-x^2 Cos^2\mu} = \frac{\pi}{Cos\mu} l\left\{Cos\left(\frac{\pi-4\mu}{8}\right).Cosec\left(\frac{\pi+4\mu}{8}\right)\right\}$ V. T. 122, N. 5.

10) $\int Arctg\{p\sqrt{1-x^2}\}\frac{dx}{1-x^2} = \frac{1}{2}\pi l\{p+\sqrt{1+p^2}\}$ V. T. 244, N. 11.

11) $\int Arctg\{Tg\lambda.\sqrt{1-p^2x^2}\}dx\sqrt{\frac{1-p^2x^2}{1-x^2}} = \frac{1}{2}\pi E(p,\lambda) - \frac{1}{2}\pi Cot\lambda.\{1-\sqrt{1-p^2 Sin^2\lambda}\}$ V. T. 341, N. 12.

12) $\int Arctg\{Tg\lambda.\sqrt{1-p^2x^2}\}dx\sqrt{\frac{1-x^2}{1-p^2x^2}} = \frac{\pi}{2p^2}\{E(p,\lambda)-(1-p^2)F(p,\lambda)\} - \frac{\pi}{2p^2}Cot\lambda.\{1-\sqrt{1-p^2 Sin^2\lambda}\}$ (VIII, 547).

13) $\int Arctg\{Tg\lambda.\sqrt{1-p^2x^2}\}\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}} = \frac{\pi}{2}F(p,\lambda)$ V. T. 344, N. 3.

14) $\int Arctg\{Tg\lambda.\sqrt{1-p^2x^2}\}\frac{x^2dx}{\sqrt{(1-x^2)(1-p^2x^2)}} = \frac{\pi}{2p^2}\{F(p,\lambda)-E(p,\lambda)\} + \frac{\pi}{2p^2}Cot\lambda.\{1-\sqrt{1-p^2 Sin^2\lambda}\}$ (VIII, 547).

15) $\int Arctg\{Tg\lambda.\sqrt{1-p^2x^2}\}dx\sqrt{\frac{1-x^2}{(1-p^2x^2)^3}} = \frac{\pi}{2p^2}\{F(p,\lambda)-E(p,\lambda)\} + \frac{\pi Tg\lambda}{2p^2}\{\sqrt{1-p^2 Sin^2\lambda}-\sqrt{1-p^2}\}$ (VIII, 547).

16) $\int Arctg\{Tg\lambda.\sqrt{1-p^2x^2}\}\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}} = \frac{1}{2}\frac{\pi}{1-p^2}E(p,\lambda) - \frac{\pi}{2}\frac{Tg\lambda}{1-p^2}\{\sqrt{1-p^2 Sin^2\lambda}-\sqrt{1-p^2}\}$ V. T. 344, N. 7.

17) $\int Arctg\{Tg\lambda.\sqrt{1-p^2x^2}\}\frac{x^2dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}} = \frac{\pi}{2p^2}\left\{\frac{1}{1-p^2}E(p,\lambda)-F(p,\lambda)\right\} - \frac{\pi Tg\lambda}{2p^2(1-p^2)}\{\sqrt{1-p^2 Sin^2\lambda}-\sqrt{1-p^2}\}$ (VIII, 547).

18) $\int Arccot\{Tg\lambda.\sqrt{1-p^2x^2}\}dx\sqrt{\frac{1-p^2x^2}{1-x^2}} = \frac{1}{2}\pi E(p,\Phi) - \frac{1}{2}\pi Cot\lambda.\left\{\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}-1\right\}$ V. T. 341, N. 13.

19) $\int Arccot\{Tg\lambda.\sqrt{1-p^2x^2}\}dx\sqrt{\frac{1-x^2}{1-p^2x^2}} = \frac{\pi}{2p^2}\{E(p,\Phi)-(1-p^2)F(p,\Phi)\} - \frac{\pi Cot\lambda}{2p^2}\left\{\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}-1\right\}$ (VIII, 547).

20) $\int Arccot\{Tg\lambda.\sqrt{1-p^2x^2}\}\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{1}{2}\pi F(p,\Phi)$ V. T. 344, N. 14.

21) $\int Arccot\{Tg\lambda.\sqrt{1-p^2x^2}\}\frac{x^2\,dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{\pi}{2p^2}\{F(p,\Phi)-E(p,\Phi)\}+$
$+\frac{\pi}{2p^2}Cot\lambda.\left\{\frac{1}{\sqrt{1-p^2Sin^2\lambda}}-1\right\}$ (VIII, 547).

22) $\int Arccot\{Tg\lambda.\sqrt{1-p^2x^2}\}\,dx\sqrt{\frac{1-x^2}{(1-p^2x^2)^3}}=\frac{\pi}{2p^2}\{F(p,\Phi)-E(p,\Phi)\}+$
$+\frac{\pi}{2p^2}Tg\lambda.\sqrt{1-p^2}.\left\{1-\sqrt{\frac{1-p^2}{1-p^2Sin^2\lambda}}\right\}$ (VIII, 548).

23) $\int Arccot\{Tg\lambda.\sqrt{1-p^2x^2}\}\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}}=\frac{1}{2}\frac{\pi}{1-p^2}E(p,\Phi)-$
$-\frac{\pi}{2}\frac{Tg\lambda}{\sqrt{1-p^2}}\left\{1-\sqrt{\frac{1-p^2}{1-p^2Sin^2\lambda}}\right\}$ V. T. 344, N. 18.

24) $\int Arccot\{Tg\lambda.\sqrt{1-p^2x^2}\}\frac{x^2\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}}=\frac{\pi}{2p^2}\left\{\frac{1}{1-p^2}E(p,\Phi)-F(p,\Phi)\right\}-$
$-\frac{\pi\,Tg\lambda}{2p^2\sqrt{1-p^2}}\left\{1-\sqrt{\frac{1-p^2}{1-p^2Sin^2\lambda}}\right\}$ (VIII, 548).

Dans 18) à 24) on a $Cot\Phi=Tg\lambda.\sqrt{1-p^2}$.

F. Alg. rat. ent.; Circ. Inv. de x. TABLE 246. Lim. 0 et ∞.

1) $\int Arctg\,x.x^{p-2}dx=\frac{1}{1-p}\frac{\pi}{2}Cosec\frac{1}{2}p\pi\;[0<p<1]$ V. T. 16, N. 2.

2) $\int Arccot\,x.x^{p-1}dx=\frac{\pi}{2p}Sec\frac{1}{2}p\pi\;[0<p<1]$ V. T. 16, N. 2.

3) $\int(1-x\,Arccot\,x)dx=\frac{1}{4}\pi$ V. T. 206, N. 9.

F. Alg. rat. fract. à dén. monôme; Circ. Inv. de x. TABLE 247. Lim. 0 et ∞.

1) $\int Arctg\,qx\frac{dx}{x}=\infty$ V. T. 247, N. 3.

2) $\int Arctg\,qx\frac{dx}{x^2}=\infty$ (VIII, 367).

3) $\int Arctg\,x\frac{dx}{x^p}=\frac{1}{2}\frac{\pi}{p-1}Sec\left(\frac{p-1}{2}\pi\right)[p<1]$ V. T. 16, N. 2.

4) $\int \{Arctg((px)) - Arctg((qx))\} \frac{dx}{x} = \frac{\pi}{2} l \frac{p}{q}$ (VIII, 435).

5) $\int (Arctg\, px)^2 \frac{dx}{x^2} = p\pi\, l2$ (VIII, 607*).

6) $\int (Arctg\, x)^p \frac{dx}{x^2} = p\left(\frac{\pi}{2}\right)^{p-1} \left\{1 - \sum_1^\infty \frac{2}{p+2m-1} \sum_1^\infty \frac{1}{(2n)^{2m}}\right\}$ V. T. 250, N. 9.

7) $\int (Arctg\, x - x) \frac{dx}{x^3} = -\frac{1}{4}\pi$ V. T. 206, N. 9.

8) $\int Arctg \frac{x}{p} . Arctg \frac{x}{q} \frac{dx}{x^2} = \frac{\pi}{2} \left\{\frac{1}{p} l \frac{p+q}{q} + \frac{1}{q} l \frac{p+q}{p}\right\}$ (VIII, 607).

9) $\int Arccot\, px \frac{dx}{x} = \infty$ V. T. 135, N. 4.

10) $\int Arccot\, px \frac{dx}{x^2} = \infty$ V. T. 77, N. 1.

11) $\int Arccot\, x \frac{dx}{x^p} = \frac{\pi}{2(1-p)} Cosec \frac{1}{2} p\pi$ V. T. 16, N. 2.

12) $\int Arctg \frac{x}{p} . Arccot \frac{x}{q} \frac{dx}{x^2} = \infty$ (VIII, 605).

F. Alg. rat. fract. à dén. binôme; Circ. Inv. de x. TABLE 248. Lim. 0 et ∞.

1) $\int Arctg\, px \frac{x\,dx}{q^2 + x^2} = \infty$ V. T. 136, N. 14.

2) $\int Arctg\, x \frac{dx}{1-x^2} = \sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 138, N. 21.

3) $\int Arctg\, x \frac{x\,dx}{1+x^4} = \frac{1}{16}\pi^2$ V. T. 251, N. 2.

4) $\int Arctg\, x \frac{x\,dx}{1-x^4} = -\frac{\pi}{8} l2$ V. T. 138, N. 24.

5) $\int Arctg \frac{x}{p} \frac{x\,dx}{x^4 - q^4} = \frac{\pi}{8q^2} l \frac{(p+q)^2}{p^2+q^2}$ V. T. 248, N. 13.

6) $\int Arccot\, x \frac{dx}{1+x} = \frac{\pi}{4} l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 136, N. 1.

7) $\int Arccot\, x \frac{dx}{1-x} = -\frac{\pi}{4} l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 136, N. 2.

8) $\int Arccot\, px \frac{x\,dx}{1+x^2} = \frac{\pi}{2} l \frac{1+p}{p}$ (VIII, 595).

9) $\int Arccot\frac{x}{p}\,\frac{x\,dx}{x^2+q^2}=\frac{\pi}{2}\,l\frac{p+q}{q}$ (VIII, 599).

10) $\int Arccot\frac{x}{p}\,\frac{x\,dx}{x^2-q^2}=\frac{\pi}{4}\,l\frac{p^2+q^2}{q^2}$ (VIII, 355).

11) $\int Arccot\,x\,\frac{dx}{1-x^2}=\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 138, N. 21.

12) $\int Arccot\,x\,\frac{x\,dx}{1-x^4}=\frac{\pi}{8}\,l\,2$ V. T. 138, N. 24.

13) $\int Arccot\frac{x}{p}\,\frac{x\,dx}{x^4-q^4}=\frac{\pi}{8q^2}\,l\frac{p^2+q^2}{(p+q)^2}$ V. T. 248, N. 9, 10.

14) $\int Arccot\frac{x}{p}\,\frac{x^3\,dx}{x^4-q^4}=\frac{\pi}{8}\,l\frac{(p+q)^2(p^2+q^2)}{q^4}$ V. T. 248, N. 9, 10.

15) $\int (Arccot\,x)^p\,\frac{x\,dx}{1+x^2}=\left(\frac{\pi}{2}\right)^p\left[1-\sum_1^\infty\frac{2}{p+2m}\sum_1^\infty\frac{1}{(2n)^{2n}}\right]$ V. T. 205, N. 7.

F. Alg. rat. fract. à dén. puiss. de bin.; Circ. Inv. de x. TABLE 249. Lim. 0 et ∞.

1) $\int Arctg\frac{x}{q}\,\frac{dx}{(p+x)^2}=\frac{q}{p^2+q^2}\left\{l\frac{q}{p}+\frac{p\pi}{2q}\right\}$ (VIII, 595).

2) $\int Arctg\frac{x}{q}\,\frac{dx}{(p-x)^2}=\frac{1}{p^2+q^2}\left(q\,l\frac{q}{p}-\frac{1}{2}p\pi\right)$ (VIII, 595).

3) $\int Arctg\frac{x}{q}\,\frac{x\,dx}{(p^2+x^2)^2}=\frac{\pi}{4p(p+q)}$ (VIII, 596).

4) $\int Arctg\frac{x}{q}\,\frac{x\,dx}{(p^2-x^2)^2}=-\frac{\pi}{4(p^2+q^2)}$ V. T. 249, N. 1, 2.

5) $\int Arctg\,x\,\frac{x\,dx}{(1+x^2)^3}=\frac{3}{64}\pi$ V. T. 17, N. 14. 6) $\int Arctg\,x\,\frac{x^3\,dx}{(1+x^2)^3}=\frac{5}{64}\pi$ V. T. 17, N. 15.

7) $\int (Arctg\,x)^2\,\frac{1-x^2}{(1+x^2)^2}\,dx=-\frac{1}{4}\pi$ V. T. 249, N. 3.

8) $\int Arccot\frac{x}{q}\,\frac{dx}{(p+x)^2}=\frac{q}{p^2+q^2}\left\{\frac{q\pi}{2p}+l\frac{p}{q}\right\}$ (VIII, 595).

9) $\int Arccot\frac{x}{q}\,\frac{dx}{(p-x)^2}=\frac{q}{p(p^2+q^2)}\left\{p\,l\frac{p}{q}+\frac{1}{2}q\pi\right\}$ (VIII, 595).

10) $\int Arccot\frac{x}{q}\frac{x\,dx}{(p^2+x^2)^2}=\frac{\pi q}{4p^2(p+q)}$ (VIII, 596).

11) $\int Arccot\frac{x}{q}\frac{x\,dx}{(p^2-x^2)^2}=\frac{-\pi q^2}{4p^2(p^2+q^2)}$ V. T. 249, N. 8, 9.

12) $\int Arccot\,x\frac{x\,dx}{(1+x^2)^3}=\frac{5}{64}\pi$ V. T. 17, N. 14.

13) $\int Arccot\,x\frac{x^3\,dx}{(1+x^2)^3}=\frac{3}{64}\pi$ V. T. 17, N. 15.

14) $\int (Arccot\,x)^2\frac{1-x^2}{(1+x^2)^2}dx=\frac{1}{4}\pi$ V. T. 249, N. 10.

F. Alg. rat. fract. à dén. d'autre forme; Circ. Inv. de x. TABLE 250. Lim. 0 et ∞.

1) $\int Arctg\,x\frac{dx}{(1+x)x}=\frac{\pi}{4}l2+\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 137, N. 5.

2) $\int Arctg\,x\frac{dx}{(1-x)x}=\frac{\pi}{4}l2+\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 137, N. 7.

3) $\int Arctg\,qx\frac{dx}{x(p^2+x^2)}=\frac{\pi}{2p^2}l(1+pq)$ (VIII, 354).

4) $\int Arctg\,qx\frac{dx}{x(1+p^2x^2)}=\frac{\pi}{2}l\frac{p+q}{p}$ (VIII, 599).

5) $\int Arctg\frac{x}{q}\frac{dx}{x(p^2+x^2)}=\frac{\pi}{2p^2}l\frac{p+q}{q}$ (VIII, 603).

6) $\int Arctg\,qx\frac{dx}{x(1-p^2x^2)}=\frac{\pi}{4}l\frac{p^2+q^2}{p^2}$ V. T. 248, N. 10.

7) $\int Arctg\,x\frac{dx}{(1-x^4)x}=\frac{3\pi}{8}l2$ V. T. 138, N. 19.

8) $\int Arctg\,qx\frac{dx}{x(x^4-p^4)}=\frac{-\pi}{8p^4}l\{(1+pq)^2(1+p^2q^2)\}$ V. T. 248, N. 14.

9) $\int (Arctg\,x)^p\frac{dx}{x(1+x^2)}=\left(\frac{\pi}{2}\right)^p\left\{1-\sum_1^\infty\frac{2}{p+2m}\sum_1^\infty\frac{1}{(2n)^{2m}}\right\}$ V. T. 205, N. 7.

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10) $\int Arctg\, x . \left(\frac{x^p}{1+x^{2p}}\right)^{2q} \frac{dx}{x} = \frac{\sqrt{\pi^3}}{2^{2q+2}p} \frac{\Gamma(q)}{\Gamma(q+\frac{1}{2})}$ (VIII, 421).

11) $\int Arctg\, x \frac{x^{2p}}{(1+x^{2p})^2} \frac{dx}{x} = \frac{\pi}{8p}$ (VIII, 421).

12) $\int Arctg\, x \frac{1-x}{1+x} \frac{dx}{1+x^2} = \frac{\pi}{4} l2 + \sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 250, N. 1, 3.

13) $\int Arctg\, x \frac{1+x}{1-x} \frac{dx}{1+x^2} = -\frac{\pi}{4} l2 + \sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 250, N. 2, 3.

14) $\int Arctg\, qx \frac{x}{p^2+x^2} \frac{dx}{r^2+x^2} = \frac{\pi}{2(p^2-r^2)} l \frac{1+pq}{1+qr}$ (VIII, 603).

15) $\int \frac{Arctg\, x}{(x^p+x^{-p})^q} \frac{dx}{1+x^2} = \frac{\sqrt{\pi^3}}{2^{2q+2}p} \frac{\Gamma(q)}{\Gamma(q+\frac{1}{2})}$ (VIII, 550).

16) $\int Arctg\, x \frac{x}{(1+x^2)^2 - Sin^2 2\lambda} dx = \frac{\pi}{4 Sin 2\lambda} l \frac{1+Sin\lambda}{Cos\lambda}$ V. T. 138, N. 26.

17) $\int Arccot \frac{x}{q} \frac{dx}{x(p^2+x^2)} = \infty$ (VIII, 602).

18) $\int Arccot\, x \frac{1-2x-x^2}{(1+x)(1+x^2)} dx = -\frac{3\pi}{4} l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^n}$ V. T. 138, N. 22.

19) $\int Arccot\, x \frac{1-x}{1+x} \frac{dx}{1+x^2} = -\frac{\pi}{4} l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 248, N. 8 et T. 250, N. 18.

20) $\int Arccot\, x \frac{1+2x-x^2}{(1-x)(1+x^2)} dx = \frac{3\pi}{4} l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 138, N. 23.

21) $\int Arccot\, x \frac{1+x}{1-x} \frac{dx}{1+x^2} = \frac{\pi}{4} l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 248, N. 8 et T. 250, N. 20.

22) $\int Arccot\, qx \frac{x}{p^2+x^2} \frac{dx}{r^2+x^2} = \frac{\pi}{2(p^2-r^2)} l \frac{(qr+1)p}{(pq+1)r}$ (VIII, 603).

23) $\int Arccot \frac{x}{p} \frac{(q-xi)^{-a}-(q+xi)^{-a}}{i} dx = \frac{\pi}{a-1} \left\{ \left(\frac{1}{q}\right)^{a-1} - \left(\frac{1}{p+q}\right)^{a-1} \right\}$ (VIII, 582).

24) $\int Arccot\, x \frac{x}{(1+x^2)^2 - Sin^2 2\lambda} dx = \frac{\pi}{8 Sin 2\lambda} l \frac{(1+Sin 2\lambda)(1-Sin\lambda)}{(1-Sin 2\lambda)(1+Sin\lambda)}$ V. T. 138, N. 26.

1) $\int Arctg \frac{x}{q} \frac{x\,dx}{\sqrt{p^2+x^2}^3} = \frac{1}{\sqrt{p^2-q^2}} Arctg \frac{\sqrt{p^2-q^2}}{q} [q<p], = \frac{1}{\sqrt{q^2-p^2}} l \frac{q+\sqrt{q^2-p^2}}{p} [q<p]$
V. T. 21, N. 13.

2) $\int Arctg\, x \frac{dx}{(1+x)\sqrt{x}} = \frac{1}{4}\pi^2$ (IV, 363).

3) $\int Arctg\, x \frac{dx}{x\sqrt{1+x^2}} = 2 \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 206, N. 1.

4) $\int Arctg\, x \frac{1}{Sin^2\lambda - x^2 Cos^2\lambda} \frac{dx}{\sqrt{1+x^2}} = 2\, Cosec\,\lambda . \sum_0^\infty \frac{Sin\{(2n+1)\lambda\}}{(2n+1)^2}$ V. T. 207, N. 1.

5) $\int Arctg \frac{x}{p} \frac{x^2+2p^2-q^2}{\sqrt{p^2+x^2}} \frac{x\,dx}{(q^2+x^2)^2} = \frac{p}{q\sqrt{p^2-q^2}} Arctg \frac{\sqrt{p^2-q^2}}{q} [q<p], =$

$= \frac{p}{q\sqrt{q^2-p^2}} l \frac{q+\sqrt{q^2-p^2}}{p} [q>p]$ V. T. 21, N. 13.

6) $\int Arctg\, x \frac{x\,dx}{\sqrt{(1+x^2-p^2x^2)^2(1+x^2)}} = \frac{1}{p^2}\left\{F'(p) - \frac{\pi}{2\sqrt{1-p^2}}\right\}$ (VIII, 596).

7) $\int Arctg\, x \frac{1+x^2}{(1-x^2)^2} \frac{x\,dx}{\sqrt{1+x^4}} = \frac{1}{4}\pi$ (VIII, 596).

8) $\int Arctg\, x \frac{dx}{\sqrt[3]{x^2}+\sqrt[3]{x^4}} = \frac{3}{8}\pi^2$ (IV, 363).

9) $\int (Arctg\, x)^2 \frac{dx}{x^2\sqrt{1+x^2}} = -\frac{1}{4}\pi^2 + 4\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 251, N. 3.

10) $\int Arccot\, x \frac{dx}{\sqrt{1+x^2}} = 2\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 206, N. 1.

11) $\int Arccot \frac{x}{q} \frac{x\,dx}{\sqrt{p^2+x^2}^3} = \frac{1}{2}\left\{\frac{\pi}{2p} - \frac{1}{\sqrt{p^2-q^2}} Arctg \frac{\sqrt{p^2-q^2}}{q}\right\} [q<p], =$

$= \frac{1}{2}\left\{\frac{\pi}{2p} + \frac{1}{\sqrt{q^2-p^2}} l \frac{p}{q+\sqrt{q^2-p^2}}\right\} [q>p]$ V. T. 21, N. 13.

12) $\int Arccot\, x \frac{dx}{(1+x)\sqrt{x}} = \frac{1}{4}\pi^2$ V. T. 251, N. 2.

13) $\int Arccot\, x \frac{x}{Cos^2\lambda - x^2 Sin^2\lambda} \frac{dx}{\sqrt{1+x^2}} = -2\, Cosec\,\lambda . \sum_0^\infty \frac{Sin\{(2n+1)\}\lambda}{(2n+1)^2}$ V. T. 207, N. 1.

14) $\int Arccot\, x \frac{x^2+2p^2-q^2}{\sqrt{p^2+x^2}} \frac{x\,dx}{(q^2+x^2)^2} = \frac{\pi p}{2q} - \frac{p}{q\sqrt{p^2-q^2}} Arctg \frac{\sqrt{p^2-q^2}}{q}\ [q<p], =$

$= \frac{\pi p}{2q} + \frac{p}{q\sqrt{q^2-p^2}} l \frac{p}{q+\sqrt{q^2-p^2}}\ [q>p]$ V. T. 21, N. 13.

15) $\int Arccot\, x \frac{x\,dx}{\sqrt{(1+x^2-p^2x^2)^3(1+x^2)}} = \frac{1}{p^2}\left\{\frac{\pi}{2} - F'(p)\right\}$ (VIII, 597).

16) $\int Arccot\, x \frac{1+x^2}{(1-x^2)^2} \frac{x\,dx}{\sqrt{1+x^4}} = \frac{\pi}{4}$ (VIII, 596).

17) $\int (Arccot\, x)^2 \frac{x}{\sqrt{1+x^2}} dx = -\frac{1}{4}\pi^2 + 4\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 251, N. 10.

1) $\int \{Arctg((r+px)) - Arctg((r+qx))\} \frac{dx}{x} = Arccot\, r . l\frac{p}{q}$ (VIII, 435).

2) $\int Arctg\left(\frac{2px}{1+x^2}\right)\frac{dx}{x} = \pi\, l\{p+\sqrt{1+p^2}\}$ V. T. 245, N. 7.

3) $\int \left(Arctg\left\{\frac{(p-r)x}{x^2+pr}\right\}\right)^2 \frac{dx}{x^2} = \frac{2\pi}{r} lp + \frac{2\pi}{p} lr - 2\pi\frac{p+r}{pr} l\frac{p+r}{2}$ (VIII, 606).

4) $\int Arctg\left\{\frac{x^2+pr}{(p-r)x}\right\}. Arctg\frac{q}{x}\frac{dx}{x^2} = \infty$ (VIII, 605).

5) $\int Arctg\left\{\frac{(p-r)x}{1+prx^2}\right\}. Arctg\frac{q}{x}\frac{dx}{x^2} = \infty$ (VIII, 605).

6) $\int Arctg\left\{\frac{(p-r)x}{x^2+pr}\right\}. Arctg\left\{\frac{(q-s)x}{x^2+qs}\right\}\frac{dx}{x^2} = \frac{\pi}{2}\left\{\frac{q-s}{qs} l\frac{p}{r} + \frac{p-r}{pr} l\frac{q}{s} + \frac{1}{p} l\frac{p+q}{p+s} + \frac{1}{q} l\frac{q+p}{q+r} + \right.$

$\left. + \frac{1}{r} l\frac{r+s}{r+q} + \frac{1}{s} l\frac{s+r}{s+q}\right\}$ (VIII, 606).

7) $\int Arctg\frac{x}{p}. Arctg\left\{\frac{(q-s)x}{x^2+qs}\right\}\frac{dx}{x^2} = \frac{\pi}{2}\left\{\frac{1}{p} l\frac{q}{s} + \frac{p+s}{ps} l(p+s) - \frac{p+q}{pq} l(p+q) - \frac{q-s}{qs} lp\right\}$

(VIII, 606).

8) $\int Arctg\left\{\frac{(p-r)x}{1+prx^2}\right\}. Arctg\frac{x}{q}\frac{dx}{x^2} = \frac{\pi}{2}\left\{p\, l\frac{1+pq}{pq} - r\, l\frac{1+qr}{qr} + \frac{1}{q} l\frac{1+pq}{1+qr}\right\}$ (VIII, 607).

9) $\int Arctg\left\{\frac{(p-r)x}{1+prx^2}\right\}.Arctg\left\{\frac{(q-s)x}{qs+x^2}\right\}\frac{dx}{x^2}=\frac{\pi}{2}\left\{(p-r)\,l\frac{q}{s}-\frac{1+pq}{q}l(1+pq)+\right.$

$\left.+\frac{1+ps}{s}l(1+ps)-\frac{1+rs}{s}l(1+rs)+\frac{1+qr}{q}l(1+qr)\right\}$ (VIII, 606).

10) $\int Arctg(x^2)\frac{dx}{1+x^2}=\frac{1}{8}\pi^2$ V. T. 251, N. 2. 11) $\int Arctg(x^2)\frac{dx}{1+x^2}=\frac{1}{8}\pi^2$ V. T. 251, N. 8.

12) $\int Arctg\left(\frac{1}{q}\sqrt{x}\right)\frac{dx}{(p^2+x)^2}=\frac{\pi}{2p(p+q)}$ V. T. 249, N. 3.

13) $\int Arctg\left\{\frac{(p-r)x}{x^2+pr}\right\}\frac{dx}{x(q^2+x^2)}=\frac{\pi}{2q^2}l\frac{p(r+q)}{r(p+q)}$ (VIII, 603).

14) $\int Arctg\left\{\frac{(p-r)x}{1+prx^2}\right\}\frac{dx}{x(q^2+x^2)}=\frac{\pi}{2q^2}l\frac{1+pq}{1+qr}$ (VIII, 603).

15) $\int Arctg\left\{\frac{p}{\sqrt{1+x^2}}\right\}\frac{dx}{\sqrt{1+x^2}}=\frac{\pi}{2}l\{p+\sqrt{1+p^2}\}$ V. T. 245, N. 7.

16) $\int Arctg\left\{\frac{px}{\sqrt{1+x^2}}\right\}\frac{dx}{x\sqrt{1+x^2}}=\frac{\pi}{2}l\{p+\sqrt{1+p^2}\}$ V. T. 252, N. 15.

17) $\int\{Arctg(\sqrt{x})\}^2\frac{dx}{x^{\frac{3}{2}}\sqrt{1+x}}=-\frac{1}{2}\pi^2+8\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 251, N. 9.

18) $\int Arccot(x^2)\frac{dx}{1+x^2}=\frac{1}{8}\pi^2$ V. T. 251, N. 12.

19) $\int Arccot(x^2)\frac{dx}{1+x^2}=\frac{1}{8}\pi^2$ V. T. 252, N. 11.

20) $\int Arccot\left(\frac{\sqrt{x}}{q}\right)\frac{dx}{(p^2+x)^2}=\frac{q\pi}{2p^2(p+q)}$ V. T. 249, N. 10.

21) $\int\{Arccot(\sqrt{x})\}^2\frac{dx}{\sqrt{1+x}}=-\frac{1}{2}\pi^2+8\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 251, N. 17.

F. Alg. fract.; Circ. Inverse. TABLE 253. Lim. 1 et ∞.

1) $\int Arctg\,x\frac{dx}{x}=\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 108, N. 10.

2) $\int Arctg\,x\frac{dx}{x^2}=\frac{\pi}{4}+\frac{1}{2}l2$ (VIII, 595).

3) $\int Arctg\, q x \frac{dx}{x^2} = Arctg\, q + \frac{1}{2} q\, l \frac{1+q^2}{q^2}$ (VIII, 367).

4) $\int (Arctg\, x)^2 \frac{dx}{x^2} = \frac{\pi^2}{16} + \frac{3}{4}\pi\, l2 - \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 258, N. 7.

5) $\int (Arctg\, x)^p \frac{dx}{x^2} = \left(\frac{\pi}{4}\right)^p + \frac{2^p-1}{2} p \left(\frac{\pi}{4}\right)^{p-1} \left\{1 - \sum_1^\infty \frac{2}{p+2n-1} \sum_1^\infty \frac{1}{(4m)^{2n}}\right\}$ V. T. 76, N. 10.

6) $\int Arctg\, x \frac{dx}{x(1+x)} = \frac{3\pi}{8} l2$ V. T. 235, N. 11 et T. 250, N. 1.

7) $\int Arctg\, x \frac{dx}{x(1+x^2)} = \frac{3}{8}\pi\, l2 - \frac{1}{2}\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 235, N. 12 et T. 250, N. 3.

8) $\int Arccot\, x \frac{dx}{x} = \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 230, N. 3.

9) $\int Arccot \frac{x}{p} \frac{dx}{x^2} = Arctg\, p - \frac{1}{2p} l(1+p^2)$ (VIII, 367*).

10) $\int Arccot\, x \frac{x\,dx}{1+x^2} = \frac{1}{8}\pi\, l2 + \frac{1}{2}\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 204, N. 2.

11) $\int (Arccot\, x)^p \frac{x\,dx}{1+x^2} = \frac{\pi^p}{2^{2p}} \left\{1 - 2\sum_1^\infty \frac{1}{p+2n} \sum_1^\infty \frac{1}{(4m)^{2n}}\right\}$ V. T. 204, N. 6.

12) $\int Arccosec \frac{x}{p} \frac{dx}{x^2} = Arcsin\, p + \frac{1}{p}\sqrt{1-p^2} - \frac{1}{p}$ V. T. 76, N. 1.

1) $\int_{-1}^{1} Arcsin\, x \frac{dx}{1 \pm px} = \pm \frac{\pi}{2p} \left\{ l(1-p^2) + 2\, l \frac{2}{1+\sqrt{1-p^2}} \right\} [p^2 < 1], =$

$= \pm \frac{\pi}{2p} \left\{ l(p^2-1) + 2\, l2p \right\} [p^2 > 1]$ (VIII, 594).

2) $\int_{-1}^{1} Arccos\, x . (1-x^2)^a\, dx = \pi \frac{2^{a/2}}{3^{a/2}}$ (VIII, 549).

3) $\int_{-1}^{1} Arccos\, x . (1-x^2)^{a-\frac{1}{2}}\, dx = \frac{\pi^2}{2} \frac{1^{a/2}}{2^{a/2}}$ (VIII, 549).

4) $\int_{-1}^{1} Arccos\, x \frac{dx}{1 \pm px} = \pm \frac{\pi}{p} l \frac{1+\sqrt{1-p^2}}{2(1 \mp p)} [p^2 < 1]_1 = \pm \frac{\pi}{p} l \{2p(p \mp 1)\} [p^2 > 1]$ (VIII, 594).

5) $\int_{-1}^{1} Arccos\, x \frac{dx}{1+x^2} = \frac{1}{4}\pi^2$ (VIII, 550).

6) $\int_{-1}^{1} Arccos\, x \frac{dx}{Sin^2\lambda + x^2 Cos^2\lambda} = \pi(\pi - 2\lambda)\, Cosec\, 2\lambda$ (VIII, 550).

7) $\int_{-1}^{1} Arccos\, x \frac{x^{2a}\, dx}{\sqrt{1-x^2}} = \frac{1}{2}\pi^2 \frac{1^{a/2}}{2^{a/2}}$ (VIII, 549).

8) $\int_{-\infty}^{\infty} Arctg\, x \frac{dx}{1+(q+px)^2} = \frac{\pi}{p}\left\{Arctg\left(\frac{2pq}{1+q^2-p^2}\right) - Arctg\left(\frac{2q}{1-q^2-p^2}\right)\right\}$ V. T. 254, N. 10.

9) $\int_{-\infty}^{\infty} Arctg\left(\frac{p\, Cos\lambda - x}{p\, Sin\lambda}\right)\frac{dx}{1+x^2} = \pi\, Arctg\left(\frac{p\, Cos\lambda}{1+p\, Sin\lambda}\right)$ Cauchy, Ann. Math. 17, 84.

10) $\int_{-\infty}^{\infty} Arctg\,(q+px)\frac{dx}{1+x^2} = \frac{\pi}{2}\left\{Arctg\left(\frac{2q}{1-q^2-p^2}\right) - Arctg\left(\frac{2pq}{1+q^2-p^2}\right)\right\}$ (VIII, 355).

11) $\int_{0}^{\sqrt{\frac{1}{2}}} Arcsin\, x \frac{dx}{x} = \frac{1}{8}\pi\, l2 + \frac{1}{2}\sum_{0}^{\infty}\frac{(-1)^n}{(2n+1)^2}$ V. T. 204, N. 2.

12) $\int_{0}^{\sqrt{\frac{1}{2}}} (Arcsin\, x)^p \frac{dx}{x} = \frac{\pi^p}{2^{2p}}\left\{1 - \sum_{1}^{\infty}\frac{2}{p+2n}\sum_{1}^{\infty}\frac{1}{(4m)^{2n}}\right\}$ V. T. 204, N. 6.

13) $\int_{\sqrt{\frac{1}{2}}}^{1} Arccos\, x \frac{x\, dx}{1-x^2} = \frac{1}{8}\pi\, l2 + \frac{1}{2}\sum_{0}^{\infty}\frac{(-1)^n}{(2n+1)^2}$ V. T. 204, N. 2.

14) $\int_{\sqrt{\frac{1}{2}}}^{1} (Arccos\, x)^p \frac{x\, dx}{1-x^2} = \frac{\pi^p}{2^{2p}}\left\{1 - 2\sum_{1}^{\infty}\frac{1}{p+2n}\sum_{1}^{\infty}\frac{1}{(4m)^{2n}}\right\}$ V. T. 204, N. 6.

15) $\int_{p}^{q}\left\{Arctg\frac{x}{q} - Arctg\frac{x}{p}\right\}\frac{x\, dx}{1-x^4} = \frac{1}{q}(Arctg\, p - Arctg\, q)\, l\frac{(p+1)(q-1)}{(q+1)(p-1)}$

Winckler, Sitz. Ber. Wien. 43, 315.

F. Algébr.; Autre Fonction. TABLE 255. Limites diverses.

1) $\int_{0}^{1} li\left(\frac{1}{x}\right).x\, dx = 0$ V. T. 283, N. 1.

2) $\int_{0}^{1} li(x).x^{p-1}\, dx = -\frac{1}{p}\, l(1+p)\ [p \geq -1]$ (VIII, 542).

3) $\int_{0}^{1} li\,(x)\frac{dx}{x^{q+1}} = \frac{1}{q}\, l(1-q)\ [q < 1]$ (VIII, 542).

4) $\int_{1}^{\infty} li\,(x)\frac{dx}{x^{q+1}} = -\frac{1}{q}\, l(q-1)\ [q > 1]$ (VIII, 542).

5) $\int_0^\infty Si(px)\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}Ei(-pq)$ (VIII, 468).

6) $\int_0^\infty Si(px)\frac{x\,dx}{q^2-x^2}=-\frac{\pi}{2}Ci(pq)$ (VIII, 469).

7) $\int_0^\infty Ci(px)\frac{dx}{q^2+x^2}=\frac{\pi}{2q}Ei(-pq)$ (VIII, 468).

8) $\int_0^\infty Ci(px)\frac{dx}{q^2-x^2}=\frac{\pi}{2q}\left\{\frac{\pi}{2}-Si(pq)\right\}$ (VIII, 469).

9) $\int_0^\infty\left\{\frac{\Gamma(cx+p)}{(ax+r)^{cx+p}}-\frac{\Gamma(ex+p)}{\left(\frac{ae}{c}x+r\right)^{ex+p}}\right\}\frac{dx}{x}=\frac{\Gamma(p)}{r^p}l\frac{e}{c}$

10) $\int_0^\infty\left\{\frac{\Gamma(ax+p)}{\Gamma(ax+r)}-\frac{\Gamma(bx+p)}{\Gamma(bx+r)}\right\}\frac{dx}{x}=\frac{\Gamma(p)}{\Gamma(r)}l\frac{b}{a}$

Sur 9) et 10) voyez **Winckler**, Sitz. Ber. Wien. 21, 389.

11) $\int_0^p E(x)\frac{x}{1-x^2}\;\frac{dx}{\sqrt{p^2-x^2}}=\frac{p\pi}{2\sqrt{1-p^2}}$ $[p<1]$ (VIII, 478).

PARTIE TROISIÈME.

PARTIE TROISIÈME.

F. Exponent.; Logarithmique.	Fonction entière. TABLE 256.	Lim. 0 et ∞.

1) $\int e^{-x}\, lx\, dx = -A$ (VIII, 363).

2) $\int e^{-px}\, lx\, dx = -\frac{1}{p}(A + lp)$ (VIII, 363*).

3) $\int e^{-px}\, l(q+x)\, dx = \frac{1}{p}\left\{lq - e^{pq}\, Ei(-pq)\right\}$ (VIII, 591).

4) $\int e^{-px}\, l(q-x)^2\, dx = \frac{1}{p}\left\{lq^2 - 2e^{-pq}\, Ei(pq)\right\}$ (VIII, 591).

5) $\int e^{-px}\, l(q^2-x^2)^2\, dx = \frac{2}{p}\left\{lq^2 - e^{pq}\, Ei(-pq) - e^{-pq}\, Ei(pq)\right\}$ (VIII, 591).

6) $\int e^{-px}\, l(q^2+x^2)\, dx = \frac{1}{p}\left\{lq^2 - 2\, Ci(pq).Cos\, pq - 2\, Si(pq).Sin\, pq + \pi\, Sin\, pq\right\}$ (VIII, 592).

7) $\int e^{-px}\, l(q^4-x^4)^2\, dx = \frac{2}{p}\left\{4\, lq - e^{pq}\, Ei(-pq) - e^{-pq}\, Ei(pq) - 2\, Ci(pq).Cos\, pq - \right.$

$\left. - 2\, Si(pq).Sin\, pq + \pi\, Sin\, pq\right\}$ V. T. 256, N. 5, 6.

8) $\int e^{-px^2}\, lx\, dx = -\frac{1}{4}(A + lp + 2\, l2)\sqrt{\frac{\pi}{p}}$ (VIII, 363).

9) $\int e^{-p^2x^2}\, l(q^2+x^2)\, dx = \frac{1}{p}\sqrt{\pi}.\left\{lq - \sum_{1}^{\infty}(-1)^n \frac{(n+1)^{n-1|1}}{(2pq)^{2n}}\right\}$ Lobatto, N. V. Amst. 6, 1.

10) $\int l(1+e^{-x})\, dx = \frac{1}{12}\pi^2$ V. T. 114, N. 1.

11) $\int l(1-e^{-x})\, dx = -\frac{1}{6}\pi^2$ V. T. 114, N. 14.

12) $\int e^{-2ax}\, l(1+e^{-x})\, dx = \frac{1}{2a}\sum_{1}^{2a}\frac{(-1)^{n-1}}{n}$ V. T. 106, N. 3.

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13) $\int e^{-(2a+1)x} l(1+e^{-x})\,dx = \frac{2}{2a+1} l2 + \frac{1}{2a+1} \sum_1^{2a+1} \frac{(-1)^n}{n}$ V. T. 106, N. 2.

14) $\int e^{-ax} l(1-e^{-x})\,dx = -\frac{1}{a}\sum_1^a \frac{1}{n}$ V. T. 106, N. 7.

15) $\int (1+e^{-x})^{q-1} e^{-x}\, l(1+e^{-x})\,dx = \frac{1}{q} 2^q\, l2 - \frac{1}{q^2}(2^q-1)$ V. T. 106, N. 5.

16) $\int (1-e^{-x})^{q-1} e^{-x}\, l(1-e^{-x})\,dx = -\frac{1}{q^2}$ V. T. 106, N. 8.

17) $\int e^{-2ax} l(e^x+e^{-x})\,dx = \frac{1}{a}\left\{\frac{1}{2a} + l2 - \sum_0^\infty \frac{(-1)^n}{2a+n+1}\right\}$ V. T. 107, N. 9.

18) $\int l(1+2e^{-x} \operatorname{Cos}\lambda + e^{-2x})\,dx = \frac{1}{6}\pi^2 - \frac{1}{2}\lambda^2$ (VIII, 542).

19) $\int e^{-3ax} l(e^x+e^{-x}+1)\,dx = \frac{1}{9a^2} + \frac{1}{3a}\sum_0^{a-1} \frac{9n+5}{(3n+1)(3n+2)(3n+3)}$ V. T. 107, N. 1, 12.

20) $\int e^{-(3a+1)x} l(e^x+e^{-x}+1)\,dx = \frac{1}{(3a+1)^2} + \frac{3\,l3}{2(3a+1)} + \frac{\pi}{2(3a+1)\sqrt{3}} +$

$+ \frac{1}{3a+1}\left\{-2 + \sum_1^a \frac{9n-1}{(3n-1)3n(3n+1)}\right\}$ V. T. 107, N. 1, 10.

21) $\int e^{-(3a-1)x} l(e^x+e^{-x}+1)\,dx = \frac{1}{(3a-1)^2} + \frac{3\,l3}{2(3a-1)} - \frac{\pi}{2(3a-1)\sqrt{3}} +$

$+ \frac{1}{3a-1}\sum_1^{a-1} \frac{9n+2}{3n(3n+1)(3n+2)}$ V. T. 107, N. 1, 11.

22) $\int e^{-3ax} l(e^x+e^{-x}-1)\,dx = \frac{1}{9a^2} + \frac{(-1)^{a-1}}{3a}\sum_0^{a-1} (-1)^n \frac{9n+7}{(3n+1)(3n+2)(3n+3)}$

V. T. 107, N. 1, 15.

23) $\int e^{-(3a+1)x} l(e^x+e^{-x}-1)\,dx = \frac{1}{(3a+1)^2} + \frac{(-1)^a\pi}{(3a+1)\sqrt{3}} + \frac{(-1)^a}{3a+1}\left\{-2+\right.$

$\left.+ \sum_1^a (-1)^n \frac{9n+1}{(3n-1)3n(3n+1)}\right\}$ V. T. 107, N. 1, 13.

24) $\int e^{-(3a-1)x} l(e^x+e^{-x}-1)\,dx = \frac{1}{(3a-1)^2} + \frac{(-1)^{a-1}\pi}{(3a-1)\sqrt{3}} + \frac{(-1)^{a-1}}{3a-1}\left\{-2+\right.$

$\left.+ \sum_1^{a-1} (-1)^n \frac{9n+4}{3n(3n+1)(3n+2)}\right\}$ V. T. 107, N. 1, 14.

25) $\int (1+e^{-qx})^r e^{-qx} \{l(1+e^{-qx})\}^a dx = \frac{2^{r+1}}{q} \sum_0^a \frac{1^{n/1}}{(r+1)^{n+1}} (-1)^n (l2)^{a-n} - (-1)^a \frac{1^{a/1}}{q(r+1)^{a+1}}$ V. T. 106, N. 34.

26) $\int (1-e^{-qx})^r e^{-qx} \{l(1-e^{-qx})\}^a dx = (-1)^a \frac{1^{a/1}}{q(r+1)^{a+1}}$ V. T. 106, N. 35.

F. Expon. polyn. en dén.; Logar. en num. lx. TABLE 257. Lim. 0 et ∞.

1) $\int lx \frac{e^{px}+e^{-px}}{e^{\pi x}+e^{-\pi x}} dx = -\frac{1}{2} A \, Sec \frac{1}{2} p - \sum_0^\infty (-1)^n \left\{ \frac{l\{(2n+1)\pi - p\}}{(2n+1)\pi - p} + \frac{l\{(2n+1)\pi + p\}}{(2n+1)\pi + p} \right\}$ $[p<\pi]$ (VIII, 567).

2) $\int lx \frac{e^{ax}+e^{-ax}}{e^{bx}+e^{-bx}} dx = \frac{\pi}{2b} Sec \frac{a\pi}{2b} . l2\pi + \frac{\pi}{b} \sum_1^b (-1)^{n-1} Cos \left(\frac{2n-1}{2b} a\pi\right) . l \frac{\Gamma\left(\frac{2b+2n-1}{4b}\right)}{\Gamma\left(\frac{2n-1}{4b}\right)}$

$[a+b$ impair$]$, $= \frac{\pi}{2b} Sec \frac{a\pi}{2b} . l\pi + \frac{\pi}{b} \sum_1^{\frac{1}{2}(b-1)} (-1)^{n-1} Cos \left(\frac{2n-1}{2b} a\pi\right) . l \frac{\Gamma\left(\frac{2b-2n+1}{2b}\right)}{\Gamma\left(\frac{2n-1}{2b}\right)}$

$[a+b$ pair$]$ V. T. 148, N. 6.

3) $\int lx \frac{e^{px}-e^{-px}}{e^{\pi x}-e^{-\pi x}} dx = -\frac{1}{2} A \, Tg \frac{1}{2} p - \sum_0^\infty \left\{ \frac{l\{(2n+1)\pi - p\}}{(2n+1)\pi - p} - \frac{l\{(2n+1)\pi + p\}}{(2n+1)\pi + p} \right\}$ $[p<\pi]$ (VIII, 567).

4) $\int lx \frac{e^x dx}{(e^x+1)^2} = \frac{1}{2} l2\pi + \frac{1}{2} Z'\left(\frac{1}{2}\right)$ V. T. 147, N. 7.

5) $\int lx \frac{dx}{e^{x^2}+e^{-x^2}} = \frac{1}{4} \sum_0^\infty (-1)^n \{l(2n+1) + 2l2 + A\} \sqrt{\frac{\pi}{2n+1}}$ (VIII, 488).

6) $\int lx \frac{dx}{e^x+e^{-x}-1} = \frac{2\pi}{\sqrt{3}} \left\{ \frac{5}{6} l2\pi - l\Gamma\left(\frac{1}{6}\right) \right\}$ V. T. 148, N. 5.

7) $\int lx \frac{dx}{e^x+e^{-x}+2 Cos \lambda} = \frac{\pi}{2} Cosec \lambda . l \frac{(2\pi)^{\frac{\lambda}{\pi}} \Gamma\left(\frac{1}{2}+\frac{\lambda}{2\pi}\right)}{\Gamma\left(\frac{1}{2}-\frac{\lambda}{2\pi}\right)}$ V. T. 147, N. 9.

8) $\int lx \frac{dx}{e^{x^2}+e^{-x^2}+1} = \frac{1}{2} Cosec \frac{\pi}{3} . \sum_1^\infty (-1)^n Sin \frac{n\pi}{3} . (ln + 2l2 + A) \sqrt{\frac{\pi}{n}}$ (VIII, 487).

1) $\int l(1+x^2)\dfrac{dx}{e^{\frac{1}{2}\pi x}+e^{-\frac{1}{2}\pi x}} = l\dfrac{4}{\pi}$ (IV, 370).

2) $\int l(1+x^2)\dfrac{e^{\frac{1}{4}\pi x}+e^{-\frac{1}{4}\pi x}}{(e^{\frac{1}{4}\pi x}-e^{-\frac{1}{4}\pi x})^2}dx = 2\sqrt{2}-\dfrac{8}{\pi}+\dfrac{2\sqrt{2}}{\pi}l\dfrac{\sqrt{2}+1}{\sqrt{2}-1}$ V. T. 97, N. 9.

3) $\int l(1+x^2)\dfrac{e^{\frac{1}{2}\pi x}+e^{-\frac{1}{2}\pi x}}{(e^{\frac{1}{2}\pi x}-e^{-\frac{1}{2}\pi x})^2}dx = \dfrac{\pi-2}{\pi}$ V. T. 97, N. 8.

4) $\int l(1+x^2)\dfrac{e^{\pi x}+e^{-\pi x}}{(e^{\pi x}-e^{-\pi x})^2}dx = \dfrac{2l2-1}{2\pi}$ V. T. 97, N. 7.

5) $\int l(1+x^2)\dfrac{dx}{(e^{qx}-e^{-qx})^2} = \dfrac{1}{2q}\left\{l\dfrac{q}{\pi}+\dfrac{\pi}{2q}-Z'\left(\dfrac{\pi+q}{\pi}\right)\right\}$ V. T. 97, N. 15.

6) $\int l\left(\dfrac{9}{4}+x^2\right)\dfrac{e^{\frac{2}{3}\pi x}-e^{-\frac{2}{3}\pi x}}{e^{\pi x}-e^{-\pi x}}dx = 2\,Sin\dfrac{\pi}{3}.\,l\left(\dfrac{1}{2}\,Cot\dfrac{\pi}{12}\right)$ (IV, 371).

7) $\int l(q^2+x^2)\dfrac{e^{\frac{b\pi x}{a}}+e^{-\frac{b\pi x}{a}}}{e^{\pi x}+e^{-\pi x}}dx = Sec\dfrac{b\pi}{2a}.l2a+2\overset{a}{\underset{1}{\Sigma}}(-1)^{n-1}Cos\left\{\left(n-\dfrac{1}{2}\right)\dfrac{b\pi}{a}\right\}.l\dfrac{\Gamma\left(\dfrac{q+a+n-\frac{1}{2}}{2a}\right)}{\Gamma\left(\dfrac{q+n-\frac{1}{2}}{2a}\right)}$

[$a+b$ impair], $= Sec\dfrac{b\pi}{2a}.la+2\overset{\frac{1}{2}(a-1)}{\underset{1}{\Sigma}}(-1)^{n-1}Cos\left\{\left(n-\dfrac{1}{2}\right)\dfrac{b\pi}{a}\right\}.l\dfrac{\Gamma\left(\dfrac{q+a-n+\frac{1}{2}}{a}\right)}{\Gamma\left(\dfrac{q+n-\frac{1}{2}}{a}\right)}$

[$a+b$ pair] (IV, 371).

8) $\int l(q^2+x^2)\dfrac{e^{\frac{b\pi x}{a}}-e^{-\frac{b\pi x}{a}}}{e^{\pi x}-e^{-\pi x}}dx = Tg\dfrac{b\pi}{2a}.l2a+2\overset{a-1}{\underset{1}{\Sigma}}(-1)^{n-1}Sin\dfrac{nb\pi}{a}.l\dfrac{\Gamma\left(\dfrac{q+a+n}{2a}\right)}{\Gamma\left(\dfrac{q+n}{2a}\right)}$

[$a+b$ impair], $= Tg\dfrac{b\pi}{2a}.la+2\overset{\frac{1}{2}(a-1)}{\underset{1}{\Sigma}}(-1)^{n-1}Sin\dfrac{nb\pi}{a}.l\dfrac{\Gamma\left(\dfrac{q+a-n}{a}\right)}{\Gamma\left(\dfrac{q+n}{a}\right)}$ [$a+b$ pair] (IV, 371).

9) $\int l\left(\dfrac{1}{4}a^2+x^2\right)\dfrac{e^{\frac{b\pi x}{a}}+e^{-\frac{b\pi x}{a}}}{e^{\pi x}+e^{-\pi x}}dx = \overset{a}{\underset{1}{\Sigma}}(-1)^{n-1}Cos\left\{\left(n-\dfrac{1}{2}\right)\dfrac{b\pi}{a}\right\}.l\left\{\left(\dfrac{a+1}{2}-n\right)Cot\left(\dfrac{\pi}{4}-\right.\right.$

$\left.\left.-\dfrac{2n-1}{4a}\pi\right)\right\}$ [$a+b$ impair] (IV, 371).

10) $\int l\left(\dfrac{1}{4}a^2+x^2\right)\dfrac{e^{\frac{b\pi x}{a}}-e^{-\frac{b\pi x}{a}}}{e^{\pi x}-e^{-\pi x}}dx = \overset{a-1}{\underset{1}{\Sigma}}(-1)^{n-1}Sin\dfrac{nb\pi}{a}.l\left\{\left(\dfrac{1}{2}a-n\right)Cot\left(\dfrac{\pi}{4}-\dfrac{n\pi}{2a}\right)\right\}$

[$a+b$ impair] (IV, 371).

11) $\int l(q^2+x^2)\frac{dx}{e^{\frac{1}{2}\pi x}+e^{-\frac{1}{2}\pi x}} = 2\,l\,\frac{2\,\Gamma\left(\frac{q+3}{4}\right)}{\Gamma\left(\frac{q+1}{4}\right)}$ (IV, 372*).

12) $\int l(q^2+x^2)\frac{e^{\frac{1}{3}\pi x}-e^{-\frac{1}{3}\pi x}}{e^{\pi x}-e^{-\pi x}}\,dx = 2\,Sin\,\frac{\pi}{3}.\,l\,\frac{6\,\Gamma\left(\frac{q+4}{6}\right)\Gamma\left(\frac{q+5}{6}\right)}{\Gamma\left(\frac{q+1}{6}\right)\Gamma\left(\frac{q+2}{6}\right)}$ (IV, 372).

13) $\int l(q^2-x^2)\frac{dx}{(e^{\pi x}-e^{-\pi x})^2} = \frac{1}{4\pi q^2}\sum_0^\infty (-1)^{n-1}\frac{B_{2n+1}}{n+1}\,\frac{1}{q^{2n}}$ V. T. 97, N. 21.

F. Expon. polynôme en dén.; Logar. en num. de fonct. Expon. TABLE 259. Lim. 0 et ∞.

1) $\int l(1+e^{-x})\frac{dx}{1+e^{-x}} = \frac{1}{12}\pi^2 - \frac{1}{2}(l2)^2$ V. T. 114, N. 4.

2) $\int l(1+e^{-x})\frac{1-e^{-2ax}}{1+e^x}\,dx = 2\,l2.\sum_0^{a-1}\frac{1}{2n+1} - \sum_1^{2a}\frac{1}{n}\sum_1^n\frac{(-1)^{m-1}}{m}$ V. T. 114, N. 8.

3) $\int l(1+e^{-x})\frac{1+e^{-(2a+1)x}}{1+e^x}\,dx = 2\,l2.\sum_0^{a}\frac{1}{2n+1} - \sum_1^{2a+1}\frac{1}{n}\sum_1^n\frac{(-1)^{m-1}}{m}$ V. T. 114, N. 7.

4) $\int l(1+e^{-x})\frac{1-e^{-2ax}}{1-e^x}\,dx = -2\,l2\sum_0^{a-1}\frac{1}{2n+1} + \sum_1^{2a}\frac{(-1)^{n-1}}{n}\sum_1^n\frac{(-1)^{m-1}}{m}$ V. T. 114, N. 9.

5) $\int l(1+e^{-x})\frac{1-e^{-(2a+1)x}}{1-e^x}\,dx = -2\,l2.\sum_0^{a}\frac{1}{2n+1} + \sum_1^{2a+1}\frac{(-1)^{n-1}}{n}\sum_1^n\frac{(-1)^{m-1}}{m}$ V. T. 114, N. 10.

6) $\int l(1-e^{-x})\frac{1-e^{-ax}}{1-e^x}\,dx = \sum_1^a\frac{1}{n}\sum_1^n\frac{1}{m}$ V. T. 114, N. 16.

7) $\int l(1-e^{-x})\frac{1-(-1)^a e^{-ax}}{1+e^x}\,dx = -\sum_1^a\frac{(-1)^{n-1}}{n}\sum_1^n\frac{1}{m}$ V. T. 114, N. 15.

8) $\int l(1+pe^{-x})\frac{dx}{e^x+pe^{-x}} = \frac{1}{2\sqrt{p}}\,Arctg\,(\sqrt{p})\,.\,l\,(1+p)$ V. T. 114, N. 21.

9) $\int l(p+e^{-x})\frac{dx}{e^{-x}+pe^x} = \frac{1}{2\sqrt{p}}\,Arccot\,(\sqrt{p})\,.\,l\,\{(1+p)p\}$ V. T. 114, N. 20.

10) $\int l(Cos^2\lambda + e^{-2x}Sin^2\lambda)\frac{dx}{e^x-e^{-x}} = -\lambda^2$ V. T. 114, N. 27.

11) $\int l(e^{\frac{1}{2}x}+e^{-\frac{1}{2}x})\frac{dx}{e^x+e^{-x}}=\frac{\pi}{8}l2+\frac{1}{2}\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 115, N. 4.

12) $\int l(1+e^{-x})\frac{e^{-x}\,dx}{(1+e^{-x})^{q+1}}=-\frac{1}{q.2^q}l2+\frac{1}{q^2.2^q}(2^q-1)$ V. T. 114, N. 6.

13) $\int l(1+e^{-2x})\frac{dx}{(pe^x+qe^{-x})^2}=\frac{1}{p(p-q)}l\frac{p+q}{q}+\frac{2}{q^2-p^2}l2$ V. T. 114, N. 5.

14) $\int l(p+qe^{-2x})\frac{dx}{(e^x+e^{-x})^2}=\frac{1}{p-q}\left\{\frac{1}{2}(p+q)l(p+q)-qlq-pl2\right\}$ V. T. 114, N. 22.

15) $\int l(1+e^{-x})\frac{e^x+e^{-x}}{e^x+q^2e^{-x}}\frac{dx}{e^{-x}+q^2e^x}=\frac{\pi}{2q(1+q^2)}\left\{\frac{\pi}{2}l(1+q^2)-2\,Arctg\,q.lq\right\}$

V. T. 114, N. 11.

16) $\int l\frac{e^x+e^{-x}}{e^x-e^{-x}}\frac{dx}{e^x+e^{-x}}=\frac{\pi}{4}l2$ V. T. 115, N. 20.

F. Exponentielle; Logarithmique. **TABLE 260.** Limites diverses.

1) $\int_{-\infty}^{\infty}lx\frac{dx}{e^x+e^{-x}}=\frac{\pi}{2}l\left\{\frac{\Gamma(\frac{3}{4})}{\Gamma(\frac{1}{4})}\sqrt{2\pi}\right\}$ V. T. 148, N. 1.

2) $\int_{-\infty}^{\infty}lx\frac{e^{ax}-e^{-ax}}{e^{bx}-e^{-bx}}dx=\frac{\pi}{2b}Tg\frac{a\pi}{2b}.l2\pi+\frac{\pi}{b}\sum_1^{b-1}(-1)^{n-1}Sin\frac{na\pi}{b}.l\frac{\Gamma\left(\frac{b+n}{2b}\right)}{\Gamma\left(\frac{n}{2b}\right)}$ [$a+b$ impair], $=$

$=\frac{\pi}{2b}Tg\frac{a\pi}{2b}.l\pi+\frac{\pi}{b}\sum_1^{\frac{1}{2}(b-1)}(-1)^{n-1}Sin\frac{na\pi}{b}.l\frac{\Gamma\left(\frac{b-n}{b}\right)}{\Gamma\left(\frac{n}{b}\right)}$ [$a+b$ pair] V. T. 148, N. 3.

3) $\int_{-\infty}^{\infty}lx\frac{dx}{e^x+e^{-x}+1}=\frac{\pi}{\sqrt{3}}l\left\{\frac{\Gamma(\frac{2}{3})}{\Gamma(\frac{1}{3})}\sqrt[3]{2\pi}\right\}$ V. T. 148, N. 2.

4) $\int_{-\infty}^{\infty}lx\frac{e^{(a-1)x}\,dx}{1+e^{2x}+e^{4x}+\ldots+e^{2(a-1)x}}=\frac{\pi}{2a}Tg\frac{\pi}{2a}.l2\pi+\frac{\pi}{a}\sum_1^{a-1}(-1)^{n-1}Sin\frac{n\pi}{a}.l\frac{\Gamma\left(\frac{a+n}{2a}\right)}{\Gamma\left(\frac{n}{2a}\right)}$

[a pair], $=\frac{\pi}{2a}Tg\frac{\pi}{2a}.l\pi+\frac{\pi}{a}\sum_1^{\frac{1}{2}(a-1)}(-1)^{n-1}Sin\frac{n\pi}{a}.l\frac{\Gamma\left(\frac{a-n}{a}\right)}{\Gamma\left(\frac{n}{a}\right)}$ [a impair] V. T. 148, N. 4.

5) $\int_1^\infty e^{-qx}\, lx\, dx = -\frac{1}{q} Ei(-q)$ V. T. 104, N. 10.

6) $\int_1^\infty lx \frac{e^{qx}-e^{-qx}}{(e^{qx}+e^{-qx})^2} dx = \frac{1}{q\pi} \sum_0^\infty \frac{(-1)^n}{2n+1} l\left\{1+\left(\frac{2n+1}{2q}\pi\right)^2\right\}$ V. T. 104, N. 13.

7) $\int_1^\infty lx \frac{e^{qx}+e^{-qx}}{(e^{qx}-e^{-qx})^2} dx = \frac{1}{2q^2} + \frac{1}{q\pi} \sum_1^\infty \frac{(-1)^n}{n} Arctg \frac{n\pi}{q}$ V. T. 104, N. 14.

8) $\int_0^1 e^{\sqrt{x}-1} l(1-\sqrt{x}) dx = 2\frac{1-e}{e}$ (VIII, 592).

9) $\int_0^\infty \frac{e^{-x}}{lx} dx = 0$ V. T. 31, N. 2.

10) $\int_0^{2\pi} l(1-pe^{\pm xi}) dx = 0$ (IV, 373).

11) $\int_0^{2\pi} e^{-axi} l(r+pe^{xi}) dx = 2\pi \frac{p^a}{1^{a/1}} lr$ (VIII, 273).

12) $\int_{-\pi}^{\pi} e^{-qxi} l(1-pe^{xi}) dx = -\frac{2\pi}{q} p^q \; [p^2 < 1]$ (IV, 373).

13) $\int_{-\pi}^{\pi} e^{qxi} l(1-pe^{xi}) dx = 0 \; [p^2 < 1]$ (IV, 373).

F. Exp. $e^{\pm ax}$; Circ. Dir. ent. à un facteur. TABLE 261. Lim. 0 et ∞.

1) $\int e^{-px} Sin\, qx\, dx = \frac{q}{p^2+q^2}$ (VIII, 202).

2) $\int e^{-px} Cos\, qx\, dx = \frac{p}{p^2+q^2}$ (VIII, 202).

3) $\int e^{-px} Sin(qx+\lambda) dx = \frac{1}{p^2+q^2}(q\, Cos\lambda + p\, Sin\lambda)$ (VIII, 202*).

4) $\int e^{-px} Cos(qx+\lambda) dx = \frac{1}{p^2+q^2}(p\, Cos\lambda - q\, Sin\lambda)$ (VIII, 202*).

5) $\int e^{-px} Sin\, qix\, dx = \frac{qi}{p^2-q^2}$ (VIII, 202*).

6) $\int e^{-x\, Cos\lambda} Sin(\lambda - x\, Sin\lambda) dx = 0$ (VIII, 629).

7) $\int e^{-x\, Cos\lambda} Cos(\lambda - x\, Sin\lambda) dx = 1$ (VIII, 629).

8) $\int e^{-px} Cotg\, qx\, dx = 4q \sum_1^\infty \frac{n}{p^2+4q^2n^2}$ (IV, 374).

9) $\int e^{-px} Sin(2q\sqrt{x}) dx = \frac{q}{p} e^{-\frac{q^2}{p}} \sqrt{\frac{\pi}{p}}$ (VIII, 519).

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10) $\int e^{-px}\, Tg(q\sqrt{x})\,dx = \frac{2q}{p}\sqrt{\frac{\pi}{p}}\cdot\sum_1^\infty (-1)^n\, n\, e^{-\frac{n^2q^2}{p}}$ V. T. 362, N. 15.

11) $\int e^{-px}\, Cot(q\sqrt{x})\,dx = -\frac{2q}{p}\sqrt{\frac{\pi}{p}}\cdot\sum_1^\infty n\, e^{-\frac{n^2q^2}{p}}$ V. T. 362, N. 16.

12) $\int e^{-px}\, Cosec(2q\sqrt{x})\,dx = -\frac{2q}{p}\sqrt{\frac{\pi}{p}}\cdot\sum_1^\infty (2n-1)\, e^{-(2n-1)^2\frac{q^2}{p}}$ V. T. 362, N. 17.

1) $\int e^{-px}\, Sin^{2a} x\,dx = \frac{1}{p}\,\frac{1^{2a/1}}{(p^2+2^2)(p^2+4^2)\ldots\{p^2+(2a)^2\}}$ (VIII, 249).

2) $\int e^{-px}\, Sin^{2a+1} x\,dx = \frac{1^{2a+1/1}}{(p^2+1^2)(p^2+3^2)\ldots\{p^2+(2a+1)^2\}}$ (VIII, 249).

3) $\int e^{-px}\, Cos^{2a} x\,dx = \frac{1}{p}\,\frac{1^{2a/1}}{(p^2+2^2)(p^2+4^2)\ldots\{p^2+(2a)^2\}}\left\{1+\frac{p^2}{1.2}+\frac{p^2(p^2+2^2)}{1^{4/1}}+\ldots+\right.$
$\left.+\frac{p^2(p^2+2^2)(p^2+4^2)\ldots\{p^2+(2a-2)^2\}}{1^{2a/1}}\right\}$ (VIII, 252).

4) $\int e^{-px}\, Cos^{2a+1} x\,dx = p\,\frac{1^{2a+1/1}}{(p^2+1^2)(p^2+3^2)\ldots\{p^2+(2a+1)^2\}}\left\{1+\frac{p^2+1^2}{1.2.3}+\right.$
$\left.+\frac{(p^2+1^2)(p^2+3^2)}{1^{5/1}}+\ldots+\frac{(p^2+1^2)(p^2+3^2)\ldots\{p^2+(2a-1)^2\}}{1^{2a+1/1}}\right\}$ (VIII, 252).

5) $\int e^{-px}\, Sin\,qx\,.\,Sin\,rx\,dx = \frac{2pqr}{\{p^2+(q-r)^2\}\{p^2+(q+r)^2\}}$ (VIII, 332).

6) $\int e^{-px}\, Sin\,qx\,.\,Cos\,rx\,dx = q\,\frac{p^2+q^2-r^2}{\{p^2+(q-r)^2\}\{p^2+(q+r)^2\}}$ (VIII, 332).

7) $\int e^{-px}\, Cos\,qx\,.\,Cos\,rx\,dx = p\,\frac{p^2+q^2+r^2}{\{p^2+(q-r)^2\}\{p^2+(q+r)^2\}}$ (VIII, 332).

8) $\int e^{-px}\, Sin^{2a}x\,.\,Sin\,qx\,dx = \frac{(-1)^a}{(2a+1)2^{2a+2}}\left\{\frac{1}{\binom{\frac{1}{2}q+a-\frac{1}{2}pi}{2a+1}}-+\frac{1}{\binom{\frac{1}{2}q+a+\frac{1}{2}pi}{2a+1}}\right\}$

9) $\int e^{-px}\, Sin^{2a}x\,.\,Cos\,qx\,dx = \frac{(-1)^{a-1}\,i}{(2a+1)2^{2a+2}}\left\{-\frac{1}{\binom{\frac{1}{2}q+a-\frac{1}{2}pi}{2a+1}}-\frac{1}{\binom{\frac{1}{2}q+a+\frac{1}{2}pi}{2a+1}}\right\}$

10) $\int e^{-px} Sin^{2a-1}x . Sin qx dx = \frac{(-1)^a i}{a . 2^{2a+2}} \left\{ \frac{1}{\left(\frac{1}{2}\frac{(q-1)+a-\frac{1}{2}pi}{2a}\right)} - \frac{1}{\left(\frac{1}{2}\frac{(q-1)+a+\frac{1}{2}pi}{2a}\right)} \right\}$

11) $\int e^{-px} Sin^{2a-1}x . Cos qx dx = \frac{(-1)^a}{a . 2^{2a+2}} \left\{ \frac{1}{\left(\frac{1}{2}\frac{(q-1)+a-\frac{1}{2}pi}{2a}\right)} + \frac{1}{\left(\frac{1}{2}\frac{(q-1)+a+\frac{1}{2}pi}{2a}\right)} \right\}$

12) $\int e^{-px} (1-e^x)^{a-1} Sin qx dx = \frac{(-1)^a i}{2a} \left\{ \frac{1}{\left(\frac{p-qi}{a}\right)} - \frac{1}{\left(\frac{p+qi}{a}\right)} \right\}$

13) $\int e^{-px} (1-e^x)^{a-1} Cos qx dx = \frac{(-1)^{a-1}}{2a} \left\{ \frac{1}{\left(\frac{p-qi}{a}\right)} + \frac{1}{\left(\frac{p+qi}{a}\right)} \right\}$

Sur 8) à 13) voyez Raabe, Dschr. Zür. 8, 1.

14) $\int e^{-px} Cos x dx \sqrt{Cos 2qx} = \sum_0^\infty \frac{(-2q)^n}{n^{n-1/1}} \frac{Cos (n Arccot p)}{\sqrt{1+q^{2n}}}$ (IV, 375).

15) $\int e^{-2px} Sin (q^2 x^2) dx = \frac{1}{4q} \left\{ Cos\left(\frac{p^2}{q^2}\right) + Sin\left(\frac{p^2}{q^2}\right) \right\} \sqrt{2\pi} - \frac{p}{q^2} \left\{ Cos\left(\frac{p^2}{q^2}\right) . \sum_0^\infty (-1)^n \right.$
$\left. \frac{1}{(4n+1)1^{2n/1}} \left(\frac{p}{q}\right)^{4n} + Sin\left(\frac{p^2}{q^2}\right) . \sum_1^\infty (-1)^n \frac{1}{(4n-1)1^{2n-1/1}} \left(\frac{p}{q}\right)^{4n-2} \right\}$ (IV, 376).

16) $\int e^{-2px} Cos (q^2 x^2) dx = \frac{1}{4q} \left\{ Cos\left(\frac{p^2}{q^2}\right) - Sin\left(\frac{p^2}{q^2}\right) \right\} \sqrt{2\pi} - \frac{p}{q^2} \left\{ Sin\left(\frac{p^2}{q^2}\right) . \sum_0^\infty (-1)^n \right.$
$\left. \frac{1}{(4n+1)1^{2n/1}} \left(\frac{p}{q}\right)^{4n} - Cos\left(\frac{p^2}{q^2}\right) . \sum_1^\infty (-1)^n \frac{1}{(4n-1)1^{2n-1/1}} \left(\frac{p}{q}\right)^{4n-2} \right\}$ (IV, 376).

F. Exp. $e^{\pm ax^2}$; Circ. Dir. ent. — TABLE 263. — Lim. 0 et ∞.

1) $\int e^{-px^2} Sin qx dx = \sum_0^\infty (-1)^n \frac{1}{(n+2)^{n+1/1}} \frac{q^{2n+1}}{p^{n+1}}$ (VIII, 490*).

2) $\int e^{-px^2} Cos qx dx = \frac{1}{2} e^{-\frac{q^2}{4p}} \sqrt{\frac{\pi}{p}}$ (VIII, 518).

3) $\int e^{x^2 i} Cos qx dx = \frac{1+i}{2} e^{-\frac{1}{4}q^2 i} \sqrt{\frac{\pi}{2}}$ V. T. 70, N. 13, 14.

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4) $\int e^{-px^2} Sin\, qx . Sin\, rx\, dx = \frac{1}{4}\sqrt{\frac{\pi}{p}} . \left\{ e^{-\frac{(q-r)^2}{4p}} - e^{-\frac{(q+r)^2}{4p}} \right\}$ V. T. 263, N. 2.

5) $\int e^{-px^2} Cos\, qx . Cos\, rx\, dx = \frac{1}{4}\sqrt{\frac{\pi}{p}} . \left\{ e^{-\frac{(q-r)^2}{4p}} + e^{-\frac{(q+r)^2}{4p}} \right\}$ V. T. 263, N. 2.

6) $\int e^{-px^2} Sin^2\, qx\, dx = \frac{1}{2}\left(1 - e^{-\frac{q^2}{p}}\right)\sqrt{\frac{\pi}{p}}$ V. T. 26, N. 2 et T. 263, N. 2.

7) $\int e^{-x^2} Cot\, qx\, dx = \sqrt{\pi} . \sum_1^{\infty} e^{-(nq)^2}$ (IV, 377).

8) $\int e^{-px^2} Sin\,(qx^2)\, dx = \frac{\sqrt{\pi}}{2\sqrt[4]{p^2+q^2}} Sin\left(\frac{1}{2} Arctg \frac{q}{p}\right)$ (VIII, 529*).

9) $\int e^{-px^2} Cos\,(qx^2)\, dx = \frac{\sqrt{\pi}}{2\sqrt[4]{p^2+q^2}} Cos\left(\frac{1}{2} Arctg \frac{q}{p}\right)$ (VIII, 529*).

10) $\int e^{-px^2} Sin\,(qx^2) . Cos\, rx\, dx = \frac{1}{2}\sqrt{\frac{\pi}{p^2+q^2}} . e^{-ab}(b\, Sin\, ac - c\, Cos\, ac)$ (IV, 377).

11) $\int e^{-px^2} Cos\,(qx^2) . Cos\, rx\, dx = \frac{1}{2}\sqrt{\frac{\pi}{p^2+q^2}} . e^{-ab}(b\, Cos\, ac + c\, Sin\, ac)$ (IV, 377).

Dans 10) et 11) on a $a = \frac{r^2}{4(p^2+q^2)}$, $2b^2 = p + \sqrt{p^2+q^2}$, $2c^2 = -p + \sqrt{p^2+q^2}$.

12) $\int e^{-x^2} Sin\left(\frac{2p^2}{x^2}\right) dx = \frac{1}{2} e^{-2p} Sin\,(2p) . \sqrt{\pi}$ (IV, 377).

13) $\int e^{-x^2} Cos\left(\frac{2p^2}{x^2}\right) dx = \frac{1}{2} e^{-2p} Cos\,(2p) . \sqrt{\pi}$ (IV, 377).

F. Exp. en dén. binôme à Exp. $e^{\pm a x}$; Circ. Dir. en num. TABLE 264. Lim. 0 et ∞.

1) $\int \frac{Sin\, px}{e^{qx}+1} dx = \frac{1}{2p} - \frac{1}{q} \frac{\pi}{e^{\frac{p\pi}{q}} - e^{-\frac{p\pi}{q}}}$ (VIII, 557*).

2) $\int \frac{Sin\, px}{e^{qx}-1} dx = \frac{\pi}{2q} \frac{e^{\frac{2p\pi}{q}}+1}{e^{\frac{2p\pi}{q}}-1} - \frac{1}{2p}$ (VIII, 557*).

3) $\int \frac{Sin\, pxi}{i} \frac{dx}{e^{qx}+1} = \frac{\pi}{2q} Cosec \frac{p\pi}{q} - \frac{1}{2p}$ (VIII, 557*).

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4) $\int \frac{Sin\, pxi}{i} \frac{dx}{e^{qx}-1} = \frac{1}{2p} - \frac{\pi}{2q} Cot \frac{p\pi}{q}$ (VIII, 556*).

5) $\int \frac{Sin\, px}{1-e^{-x}} dx = -\sum_0^\infty \frac{p}{n^2+p^2}$ Del Grosso, Mem. Nap. 2, 37.

6) $\int \frac{Sin\, px}{e^{qx}-e^{-qx}} dx = \frac{\pi}{4q} \frac{e^{\frac{p\pi}{q}}-1}{e^{\frac{p\pi}{q}}+1}$ (VIII, 638*).

7) $\int \frac{Sin\, pxi}{i} \frac{dx}{e^{qx}-e^{-qx}} = \frac{\pi}{4q} Tg \frac{p\pi}{2q}$ (VIII, 557*).

8) $\int \frac{Sin\, px}{e^{ax}-e^{(a-1)x}} dx = \frac{1}{2}\pi - \frac{1}{2p} + \frac{\pi}{e^{2p\pi}-1} - \sum_0^a \frac{p}{p^2+(n+1)^2}$ (IV, 379).

9) $\int \frac{Sin\, px}{e^{\pi x}-e^{-\pi x}} e^{qx} dx = \sum_1^\infty \frac{p}{p^2+\{(2n-1)\pi-q\}^2}$ $[q<\pi]$ (IV, 379).

10) $\int \frac{Sin\, px}{e^{2\pi x}-1} e^{qx} dx = \sum_1^\infty \frac{p}{(2n\pi-q)^2+p^2}$ (IV, 380).

11) $\int \frac{Sin\, px}{e^{2\pi x}-1} e^{-qx} dx = \sum_1^\infty \frac{p}{p^2+(q+2n\pi)^2}$ (IV, 380).

12) $\int \frac{Sin\, px}{1-e^{-x}} e^{-qx} dx = \phi - \frac{1}{2p} Sin^2 \phi + \sum_1^\infty (-1)^n \frac{Sin^{2n}\phi \, . \, Sin\, 2n\phi}{2np^{2n}} B_{2n-1}$, où $Cot\, \phi = \frac{q-1}{p}$ (IV, 380*).

13) $\int \frac{Cos\, px}{1-e^{-x}} dx = \sum_0^\infty \frac{n}{n^2+p^2}$ Del Grosso, Mem. Nap. 2, 27.

14) $\int \frac{Cos\, px}{e^{qx}+e^{-qx}} dx = \frac{\pi}{2q} \frac{1}{e^{\frac{p\pi}{2q}}+e^{-\frac{p\pi}{2q}}}$ (VIII, 638*).

15) $\int \frac{Cos\, pxi}{e^{qx}+e^{-qx}} dx = \frac{\pi}{4q} Sec \frac{p\pi}{2q}$ (VIII, 557*).

16) $\int \frac{Cos\, px}{(e^{qx}+1)^2} e^{qx} dx = \frac{1}{q^2} \frac{p\pi}{e^{\frac{p\pi}{q}}-e^{-\frac{p\pi}{q}}}$ V. T. 264, N. 1.

17) $\int \frac{Sin^2 px}{e^{qx}+e^{-qx}} dx = \frac{\pi}{8q} \frac{\left(e^{\frac{p\pi}{q}}-1\right)^2}{e^{\frac{2p\pi}{q}}+1}$ V. T. 27, N. 2 et T. 264, N. 14.

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18) $\int \frac{Cos^2 px}{e^{qx}+e^{-qx}} dx = \frac{\pi}{8q} \frac{\left(e^{\frac{p\pi}{q}}+1\right)^2}{e^{\frac{2p\pi}{q}}+1}$ V. T. 27, N. 2 et T. 264, N. 14.

19) $\int \frac{Sin px . Sin rx}{e^{qx}+e^{-qx}} dx = \frac{\pi}{4q} \frac{\left(e^{\frac{p\pi}{2q}}-e^{-\frac{p\pi}{2q}}\right)\left(e^{\frac{r\pi}{2q}}-e^{-\frac{r\pi}{2q}}\right)}{e^{\frac{p\pi}{q}}+e^{-\frac{p\pi}{q}}+e^{\frac{r\pi}{q}}+e^{-\frac{r\pi}{q}}}$ V. T. 264, N. 14.

20) $\int \frac{Sin px . Cos rx}{e^{qx}-e^{-qx}} dx = \frac{\pi}{4q} \frac{e^{\frac{r\pi}{q}}-e^{-\frac{r\pi}{q}}}{e^{\frac{p\pi}{q}}+e^{-\frac{p\pi}{q}}+e^{\frac{r\pi}{q}}+e^{-\frac{r\pi}{q}}}$ V. T. 264, N. 6.

21) $\int \frac{Cos px . Cos rx}{e^{qx}+e^{-qx}} dx = \pi \frac{e^{\frac{p\pi}{2q}}+e^{-\frac{p\pi}{2q}}}{4q} \frac{e^{\frac{r\pi}{2q}}+e^{-\frac{r\pi}{2q}}}{e^{\frac{p\pi}{q}}+e^{-\frac{p\pi}{q}}+e^{\frac{r\pi}{q}}+e^{-\frac{r\pi}{q}}}$ V. T. 264, N. 14.

22) $\int Sin\left(p\frac{e^x+e^{-x}}{2}\right) . Sin\left(p\frac{e^x-e^{-x}}{2}\right) \frac{dx}{e^x-e^{-x}} = \frac{\pi}{4} Sin p$ Cauchy, Ann. Math. 17, 84.

F. Exp. en num. et en dén. bin. à Exp. $e^{\pm ax}$; Circ. Dir. en num. **TABLE 265.** **Lim. 0 et ∞.**

1) $\int \frac{e^{qx}-e^{-qx}}{e^{qx}+e^{-qx}} Sin rx dx = \frac{\pi}{q} \frac{1}{e^{\frac{r\pi}{2q}}-e^{-\frac{r\pi}{2q}}}$ (VIII, 638*).

2) $\int \frac{e^{px}-e^{-px}}{e^{qx}+e^{-qx}} Sin rx dx = \frac{\pi}{q} \frac{e^{\frac{r\pi}{2q}}-e^{-\frac{r\pi}{2q}}}{e^{\frac{r\pi}{q}}+e^{-\frac{r\pi}{q}}+2 Cos\frac{p\pi}{q}} Sin\frac{p\pi}{2q}$ $[p<2q]$ (VIII, 638*).

3) $\int \frac{e^{qx}+e^{-qx}}{e^{qx}-e^{-qx}} Sin rx dx = \frac{\pi}{2q} \frac{e^{\frac{r\pi}{q}}+1}{e^{\frac{r\pi}{q}}-1}$ (VIII, 638*).

4) $\int \frac{e^{px}+e^{-px}}{e^{qx}-e^{-qx}} Sin rx dx = \frac{\pi}{2q} \frac{e^{\frac{r\pi}{q}}-e^{-\frac{r\pi}{q}}}{e^{\frac{r\pi}{q}}+e^{-\frac{r\pi}{q}}+2 Cos\frac{p\pi}{q}}$ $[p^2 \leqq q^2]$ (VIII, 638*).

5) $\int \frac{e^{px}+e^{-px}}{e^{qx}-1} Sin rx dx = \frac{\pi}{q} \frac{e^{\frac{2r\pi}{q}}-e^{-\frac{2r\pi}{q}}}{e^{\frac{r\pi}{q}}+e^{-\frac{r\pi}{q}}-2 Cos\frac{2p\pi}{q}} - \frac{r}{r^2+p^2}$ $[p<q]$ (VIII, 638*).

6) $\int \frac{e^{px}+e^{-px}}{e^{qx}+e^{-qx}} Cos rx dx = \frac{\pi}{q} \frac{e^{\frac{r\pi}{2q}}+e^{-\frac{r\pi}{2q}}}{e^{\frac{r\pi}{q}}+e^{-\frac{r\pi}{q}}+2 Cos\frac{p\pi}{q}} Cos\frac{p\pi}{2q}$ $[p<2q]$ (VIII, 638*).

7) $\int \frac{e^{px}-e^{-px}}{e^{qx}-e^{-qx}} Cos\, rx\, dx = \frac{\pi}{q} \frac{Sin \frac{p\pi}{q}}{e^{\frac{r\pi}{q}}+e^{-\frac{r\pi}{q}}+2 Cos \frac{p\pi}{q}}$ $[p^2 \leqq q^2]$ (VIII, 637*).

8) $\int \frac{e^{px}-e^{-px}}{e^{qx}-1} Cos\, rx\, dx = \frac{\pi}{q} \frac{Sin \frac{2p\pi}{q}}{e^{\frac{2r\pi}{q}}+e^{-\frac{2r\pi}{q}}-2 Cos \frac{2p\pi}{q}} - \frac{r}{p^2+r^2}$ (VIII, 638*).

F. Exp. en num. e^{-x^2};
Circ. Dir. en dén. trinôme.

TABLE 266.

Lim. 0 et ∞.

1) $\int \frac{e^{-px^2}}{1-2r\, Cos\, x+r^2} dx = \frac{1}{1-r^2} \left\{\frac{1}{2}+\sum_1^\infty r^n e^{-\frac{n^2}{4p}}\right\} \sqrt{\frac{\pi}{p}}$ (IV, 380).

2) $\int \frac{Cos(x\sqrt{lq})}{1-2q\, Cos(2x\sqrt{lq})+q^2} e^{-x^2} dx = \frac{\sqrt{\pi}}{2(q-1)\sqrt[4]{q}} \sum_1^\infty q^{-n^2}$ (IV, 380).

3) $\int \frac{Cos(x\sqrt{lq})}{1+2q\, Cos(2x\sqrt{lq})+q^2} e^{-x^2} dx = \frac{\sqrt{\pi}}{2(q+1)\sqrt[4]{q}} \sum_1^\infty (-1)^{n-1} q^{-n^2}$ (IV, 380).

4) $\int \frac{q\, Cos(x\sqrt{lq})-Cos(3x\sqrt{lq})}{1-2q\, Cos(2x\sqrt{lq})+q^2} e^{-x^2} dx = \frac{1}{2q} \frac{\sqrt{\pi}}{\sqrt[4]{q}} \sum_0^\infty q^{-n^2} = \frac{1}{4q} \frac{\sqrt{\pi}}{\sqrt[4]{q}} \left\{1+\sqrt{\frac{2}{\pi} F'(\lambda)}\right\}$
(IV, 381).

5) $\int \frac{q\, Cos(x\sqrt{lq})+Cos(3x\sqrt{lq})}{1+2q\, Cos(2x\sqrt{lq})+q^2} e^{-x^2} dx = \frac{1}{2q} \frac{\sqrt{\pi}}{\sqrt[4]{q}} \sum_0^\infty (-1)^n q^{-n^2} = \frac{1}{4q} \frac{\sqrt{\pi}}{\sqrt[4]{q}} \left\{1+\sqrt{\frac{2}{\pi}\sqrt{1-\lambda^2}.F'(\lambda)}\right\}$
(IV, 381).

6) $\int \frac{q-Cos(2x\sqrt{lq})}{1-2q\, Cos(2x\sqrt{lq})+q^2} e^{-x^2} dx = \frac{\sqrt{\pi}}{2\sqrt[4]{q^3}} \sum_0^\infty q^{-\left(\frac{2n+1}{2}\right)^2} = \frac{\sqrt{\pi}}{2\sqrt[4]{q^3}} \sqrt{\frac{p}{2\pi} F'(\lambda)}$ (IV, 381).

Dans 4) à 6) on a $lq.F'(\lambda) = \pi F'\{\sqrt{1-\lambda^2}\}$.

7) $\int \frac{q+Cos(2x\sqrt{lq})}{1+2q\, Cos(2x\sqrt{lq})+q^2} e^{-x^2} dx = \frac{\sqrt{\pi}}{2\sqrt[4]{q^3}} \sum_0^\infty (-1)^n q^{-\left(\frac{2n+1}{2}\right)^2}$ (IV, 381).

8) $\int \frac{Cos(2ax\sqrt{lq})-r\, Cos\{2(a+1)x\sqrt{lq}\}}{1-2r\, Cos(2x\sqrt{lq})+r^2} e^{-x^2} dx = \frac{1}{2} q^{-a^2} \sqrt{\pi}.\sum_0^\infty r^n q^{2an-n^2}$ $[r^2<1]$
(IV, 381).

9) $\int \frac{Cos\{2(a-1)x\sqrt{lq}\}-r\, Cos\{2(a+1)x\sqrt{lq}\}}{1-2r\, Cos(4x\sqrt{lq})+r^2} e^{-x^2} dx = \frac{1}{2} q^{-a^2} \sqrt{\pi}.\sum_0^\infty r^n q^{2a(2n+1)-(2n+1)^2}$
$[r^2<1]$ (IV, 381).

1) $\int \frac{e^x - e^{-x}}{e^x + e^{-x} + 2\,Cos\,p}\,Sin\,qx\,dx = \pi\,\frac{e^{pq} + e^{-pq}}{e^{q\pi} - e^{-q\pi}}\,[p \leqq \pi]$ (IV, 382).

2) $\int \frac{e^{rx} - e^{-rx}}{e^x + e^{-x} + 2\,Cos\,p}\,Sin\,qx\,dx = \frac{\pi}{Sin\,p}\,\frac{\{e^{q(\pi-p)} - e^{-q(\pi+p)}\}\,Sin\,\{r(\pi-p)\} - \{e^{q(\pi-p)} - e^{q(p-\pi)}\}\,Sin\,\{r(\pi+p)\}}{e^{2q\pi} - 2\,Cos\,2r\pi + e^{-2q\pi}}$ Cauchy, Ann. Math. 17, 84.

3) $\int \frac{Cos\,qx}{e^x + e^{-x} + 2\,Cos\,p}\,dx = \frac{\pi}{2}\,Cosec\,p\,\frac{e^{pq} - e^{-pq}}{e^{q\pi} - e^{-q\pi}}\,[p \leqq \pi]$ (IV, 381).

4) $\int \frac{Cos\,qx}{e^x + e^{-x} + e^p + e^{-p}}\,dx = \frac{2\pi}{e^p - e^{-p}}\,\frac{Sin\,pq}{e^{q\pi} - e^{-q\pi}}\,[p \leqq \pi]$ (IV, 381).

5) $\int \frac{e^x + e^{-x}}{e^x + e^{-x} + 2\,Cos\,p}\,Cos\,qx\,dx = -\pi\,Cot\,p\,\frac{e^{pq} - e^{-pq}}{e^{q\pi} - e^{-q\pi}}\,[p \leqq \pi]$ (IV, 382).

6) $\int \frac{e^{rx} + e^{-rx}}{e^x + e^{-x} + 2\,Cos\,p}\,Cos\,qx\,dx = \frac{\pi}{Sin\,p}\,\frac{\{e^{q(\pi+p)} + e^{-q(\pi+p)}\}\,Cos\,\{r(\pi-p)\} - \{e^{q(\pi-p)} + e^{q(p-\pi)}\}\,Cos\,\{r(\pi+p)\}}{e^{2q\pi} - 2\,Cos\,2r\pi + e^{-2q\pi}}$ Cauchy, Ann. Math. 17, 84.

7) $\int \frac{e^{px} - e^{-px}}{e^{2px} + e^{-2px} + 2\,Cos\,2qx}\,Sin\,qx\,dx = \frac{\pi}{4}\,\frac{q}{p^2 + q^2}$ (VIII, 336).

8) $\int \frac{e^{px} + e^{-px}}{e^{2px} + e^{-2px} + 2\,Cos\,2qx}\,Cos\,qx\,dx = \frac{\pi}{4}\,\frac{p}{p^2 + q^2}$ (VIII, 335).

9) $\int \frac{dx}{(e^{px} + e^{-px})\,Cos\,qx + i(e^{px} - e^{-px})\,Sin\,qx} = \frac{\pi}{4(p + qi)}$ (VIII, 297).

10) $\int \frac{Sin\,(px^2)}{e^{x^2} + e^{-x^2}}\,dx = \frac{1}{2}\sum_0^\infty (-1)^n \sqrt{\left\{\frac{\pi}{2}\,\frac{\sqrt{\{p^2 + (2n+1)^2\}} - (2n+1)}{p^2 + (2n+1)^2}\right\}}$ (VIII, 488).

11) $\int \frac{Sin\,(px^2)}{e^{x^2} + e^{-x^2} + 1}\,dx = \frac{1}{2}\,Cosec\,\frac{\pi}{3}.\sum_1^\infty (-1)^{n-1}\,Sin\,\frac{n\pi}{3}.\sqrt{\left\{\frac{\pi}{2}\,\frac{\sqrt{p^2 + n^2} - n}{p^2 + n^2}\right\}}$ (VIII, 488).

12) $\int \frac{Cos\,(px^2)}{e^{x^2} + e^{-x^2}}\,dx = \frac{1}{2}\sum_0^\infty (-1)^n \sqrt{\left\{\frac{\pi}{2}\,\frac{\sqrt{\{p^2 + (2n+1)^2\}} + (2n+1)}{p^2 + (2n+1)^2}\right\}}$ (VIII, 488).

13) $\int \frac{Cos\,(px^2)}{e^{x^2} + e^{-x^2} + 1}\,dx = \frac{1}{2}\,Cosec\,\frac{\pi}{3}.\sum_1^\infty (-1)^{n-1}\,Sin\,\frac{n\pi}{3}.\sqrt{\left\{\frac{\pi}{2}\,\frac{\sqrt{p^2 + n^2} + n}{p^2 + n^2}\right\}}$ (VIII, 488).

14) $\int \frac{Sin\,2ax}{(e^{2\pi x} + 2e^{\pi x}\,Cos\,2\pi x + 1)^2}\,\frac{dx}{e^{2\pi x} - 1} = \frac{1}{4e^\pi(e^\pi + 1)^2(e^\pi - 1)^2}\left\{\frac{e^{2\pi} - 1}{2\pi} - e^\pi\right\}$

Russell, Phil. Trans. 1855.

15) $\int \frac{Sin\{(2a+1)x\}}{Sin\, x} e^{-2px}\, dx = \frac{1}{2p} + \sum_1^a \frac{p}{n^2+p^2}$ (IV, 382).

16) $\int \frac{Cos\{(2a+1)x\}}{Cos\, x} e^{-px}\, Sin\, x\, dx = \frac{2a+1}{p^2+(2a+1)^2} + 2\sum_0^{a-1} (-1)^n \frac{2n+1}{p^2+(2n+1)^2}$ (IV, 382).

17) $\int \frac{Sin\{(2a+1)x\}}{Sin\, x} e^{-p^2x^2}\, dx = \frac{\sqrt{\pi}}{p}\left\{\frac{1}{2} + \sum_1^a e^{-\left(\frac{n}{p}\right)^2}\right\}$ (IV, 382).

18) $\int \frac{Cos\{(4a+1)x\}}{Cos\, x} e^{-p^2x^2}\, dx = \frac{\sqrt{\pi}}{p}\left\{\frac{1}{2} + \sum_1^{2a} (-1)^n e^{\left(\frac{n}{p}\right)^2}\right\}$ (IV, 382).

19) $\int \frac{Sin\, qx - p\, Sin\{(q-r)x\}}{1-2p\, Cos\, rx + p^2} \frac{dx}{e^{2\pi x}-1} = \frac{1}{4(1-p)} - \frac{1}{2}\sum_0^\infty \frac{p^n}{nr+q} - \frac{1}{2}\sum_0^\infty \frac{p^n}{1-e^{q+nr}}$ (IV, 382).

20) $\int \frac{e^{sx}-e^{-sx}}{1-2p\, Cos\, rx+p^2} \frac{dx}{e^{\pi x}-e^{-\pi x}} = \frac{-1}{2(1-p^2)} Tg\frac{1}{2}s + \frac{2}{1-p^2}\sum_0^\infty \frac{p^n\, Sin\, s}{e^{nr}+2\, Cos\, s+e^{-nr}}$ $[s<\pi]$ (IV, 383).

21) $\int \frac{Sin\, qx - p\, Sin\{(q-r)x\}}{1-2p\, Cos\, rx + p^2} \frac{dx}{e^{\pi x}-e^{-\pi x}} = \frac{1}{4(1-p)} - \frac{1}{2}\sum_0^\infty \frac{p^n}{1+e^{q+nr}}$ (IV, 382).

22) $\int \frac{Sin\, qx - p\, Sin\{(q-r)x\}}{1-2p\, Cos\, rx + p^2} \frac{e^{sx}+e^{-sx}}{e^{\pi x}-e^{-\pi x}}\, dx = \frac{1}{2(1-p)} - \sum_0^\infty \frac{1+e^{q+nr}\, Cos\, s}{1+2e^{q+nr}\, Cos\, s+e^{2q+2nr}} p^n$ $[s<\pi]$ (IV, 382).

23) $\int \frac{e^{sx}-e^{-sx}}{1-2p\, Cos\, rx+p^2} \frac{Cos\, rx}{e^{\pi x}-e^{-\pi x}}\, dx = \frac{1}{1-p^2}\sum_0^\infty \frac{p^n\, Sin\, s}{e^{(2n+1)r}+2\, Cos\, s+e^{-(2n+1)r}}$ $[s<\pi]$ (IV, 383).

24) $\int \frac{1-p\, Cos\, rx}{1-2p\, Cos\, rx+p^2} \frac{e^{sx}-e^{-sx}}{e^{\pi x}-e^{-\pi x}}\, dx = \sum_0^\infty \frac{p^n\, Sin\, s}{e^{nr}+2\, Cos\, s+e^{-nr}}$ $[s<\pi]$ (IV, 383).

25) $\int \frac{Cos\, qx - p\, Cos\{(q-r)x\}}{1-2p\, Cos\, rx+p^2} \frac{e^{sx}-e^{-sx}}{e^{\pi x}-e^{-\pi x}}\, dx = \sum_0^\infty \frac{e^{q+nr}\, p^n\, Sin\, s}{1+2e^{q+nr}\, Cos\, s+e^{2q+2nr}}$ $[s<\pi]$ (IV, 382).

26) $\int \frac{(e^{sx}+e^{-sx})\, Sin\, rx\,.\, Sin\, s - (e^{sx}-e^{-sx})(e^r - Cos\, rx)\, Cos\, s}{e^r-2\, Cos\, rx+e^{-r}} \frac{dx}{e^{\pi x}-e^{-\pi x}} = \frac{Sin\, s}{2(e^{-r}-1)} +$

$+ \sum_0^\infty \frac{Sin\, s}{e^{nr}+2\, Cos\, s+e^{-nr}}$ $[s<\pi]$ (IV, 382).

27) $\int \frac{(e^{sx}+e^{-sx})\, Sin\, rx\,.\, Sin\, s + (e^{sx}-e^{-sx})(e^r + Cos\, rx)\, Cos\, s}{e^r+2\, Cos\, rx+e^{-r}} \frac{dx}{e^{\pi x}-e^{-\pi x}} = \frac{Sin\, s}{2(e^{-r}+1)} -$

$- \sum_0^\infty \frac{(-1)^n\, Sin\, s}{e^{nr}+2\, Cos\, s+e^{-nr}}$ $[s<\pi]$ (IV, 382).

1) $\int e^{-\sqrt{2qx}}\, Sin\, x\, dx = \frac{1}{2}\left(Sin\frac{1}{2}q - Cos\frac{1}{2}q\right)\sqrt{q\pi} + \sum_0^\infty (-1)^n \frac{(2q)^{2n}}{(2n+1)^{2n/1}}$ (IV, 383).

2) $\int e^{-\sqrt{2qx}}\, Cos\, x\, dx = \frac{1}{2}\left(Sin\frac{1}{2}q + Cos\frac{1}{2}q\right)\sqrt{q\pi} - \sum_0^\infty (-1)^n \frac{(2q)^{2n+1}}{(2n+2)^{2n+1/1}}$ (IV, 383).

3) $\int \left\{e^{-x}\, Cos\,(p\sqrt{x}) - 2pe^{-x^2}\, Sin\, px\right\} dx = 1$ (IV, 384).

4) $\int e^{-\frac{p}{x}}\, Sin^2\left(\frac{q}{x}\right) dx = q\, Arctg\frac{q}{p} + \frac{1}{4}p\, l\frac{p^2}{p^2+4q^2}$ (VIII, 581).

5) $\int e^{-x^2+px\,Cos\,\lambda}\, Sin\,(px\, Sin\,\lambda)\, dx = \frac{1}{2}e^{\frac{1}{4}p^2\,Cos\,2\lambda}\, Sin\left(\frac{1}{4}p^2\, Sin\, 2\lambda\right).\sqrt{\pi} + \frac{1}{2}\sum_0^\infty \frac{Sin\{(2n+1)\lambda\}.p^{2n+1}}{(n+2)^{n/1}}$

(VIII, 490).

6) $\int e^{-x^2+px\,Cos\,\lambda}\, Cos(px Sin\lambda) dx = \frac{1}{2}e^{\frac{1}{4}p^2\,Cos\,2\lambda}\, Cos\left(\frac{1}{4}p^2\, Sin\, 2\lambda\right).\sqrt{\pi} + \frac{1}{2}\sum_0^\infty \frac{Cos\{(2n+1)\lambda\}.p^{2n+1}}{(n+2)^{n/1}}$

(VIII, 490).

7) $\int e^{-px^2}\left(e^{2qx} + e^{-2qx}\right) Sin\,(rx^2)\, dx = \frac{\sqrt{\pi}}{a}\, e^{-\frac{q^2}{a^2}Cos\,2\alpha}\, Sin\left(\frac{q^2}{a^2}\, Sin\, 2\alpha\right)$ (IV, 385).

8) $\int e^{-px^2}\left(e^{2qx} + e^{-2qx}\right) Cos\,(rx^2)\, dx = \frac{\sqrt{\pi}}{a}\, e^{-\frac{q^2}{a^2}Cos\,2\alpha}\, Cos\left(\frac{q^2}{a^2}\, Sin\, 2\alpha\right)$ (IV, 385).

9) $\int e^{-px^2}\left\{e^{2qx}\, Sin\,(rx^2 - 2sx) + e^{-2qx}\, Sin\,(rx^2 + 2sx)\right\} dx = \frac{\sqrt{\pi}}{a}\, e^c\, Sin\,\gamma$ (IV, 385).

10) $\int e^{-px^2}\left\{e^{2qx}\, Cos\,(rx^2 - 2sx) + e^{-2qx}\, Cos\,(rx^2 + 2sx)\right\} dx = \frac{\sqrt{\pi}}{a}\, e^c\, Cos\,\gamma$ (IV, 385).

11) $\int e^{-\frac{1}{2}\left\{(x+qi)^{2a} + (x-qi)^{2a}\right\}}\, Cos\left\{\frac{(x+qi)^{2a} - (x-qi)^{2a}}{2}\right\}.dx = \frac{1}{2a}\Gamma\left(\frac{1}{2a}\right)$ (IV, 384).

12) $\int e^{-\frac{p^2}{x^2}}\, Sin\,(2q^2x^2)\, dx = e^{-2pq}\sqrt{\pi}\,\frac{Sin\, 2pq + Cos\, 2pq}{4q}$ (VIII, 452).

13) $\int e^{-\frac{p^2}{x^2}}\, Cos\,(2q^2x^2)\, dx = e^{-2pq}\sqrt{\pi}\,\frac{Cos\, 2pq - Sin\, 2pq}{4q}$ (VIII, 452).

14) $\int e^{-px^2-\frac{q^2}{x^2}}\, Sin\,(rx^2)\, dx = \frac{1}{2}e^{-2qg}\sqrt{\frac{\pi}{p^2+r^2}}.(f\, Cos\, 2fq + g\, Sin\, 2fq)$ (VIII, 452).

15) $\int e^{-px^2-\frac{q^2}{x^2}}\, Cos\,(rx^2)\, dx = \frac{1}{2}e^{-2qg}\sqrt{\frac{\pi}{p^2+r^2}}.(g\, Cos\, 2fq - f\, Sin\, 2fq)$ (VIII, 452).

16) $\int e^{-p^2 x^2 \operatorname{Cos} 2\lambda - \frac{q^2}{4x^2}} \operatorname{Sin}(p^2 x^2 \operatorname{Sin} 2\lambda)\, dx = \frac{\sqrt{\pi}}{2p} e^{-pq \operatorname{Cos}\lambda} \operatorname{Sin}(\lambda + pq \operatorname{Sin}\lambda)$ V. T. 268, N. 14.

17) $\int e^{-p^2 x^2 \operatorname{Cos} 2\lambda - \frac{q^2}{4x^2}} \operatorname{Cos}(p^2 x^2 \operatorname{Sin} 2\lambda)\, dx = \frac{\sqrt{\pi}}{2p} e^{-pq \operatorname{Cos}\lambda} \operatorname{Cos}(\lambda + pq \operatorname{Sin}\lambda)$ V. T. 268, N. 15.

18) $\int e^{-x^2 - \frac{pr^2}{(p^2+q^2)x^2}} \operatorname{Sin}\left\{\frac{p^2 q}{(p^2+q^2)x^2}\right\} dx = \frac{1}{2}\sqrt{\pi}\,.\,e^{-2gp} \operatorname{Sin} 2fp$ (IV, 383).

19) $\int e^{-x^2 - \frac{pr^2}{(p^2+q^2)x^2}} \operatorname{Cos}\left\{\frac{p^2 q^2}{(p^2+q^2)x^2}\right\} dx = \frac{1}{2}\sqrt{\pi}\,.\,e^{-2gp} \operatorname{Cos} 2fp$ (IV, 383).

20) $\int e^{-p\left(x^2+\frac{1}{x^2}\right)} \operatorname{Sin}\left\{r\left(x^2+\frac{1}{x^2}\right)\right\} dx = \frac{1}{2}\sqrt{\frac{\pi \operatorname{Cos} 2\alpha}{p}}\,.\,e^{-2p} \operatorname{Sin}(\alpha + 2 \operatorname{Tg} 2\alpha)$ V. T. 268, N. 22.

21) $\int e^{-p\left(x^2+\frac{1}{x^2}\right)} \operatorname{Cos}\left\{r\left(x^2+\frac{1}{x^2}\right)\right\} dx = \frac{1}{2}\sqrt{\frac{\pi \operatorname{Cos} 2\alpha}{p}}\,.\,e^{-2p} \operatorname{Cos}(\alpha + 2 \operatorname{Tg} 2\alpha)$ V. T. 268, N. 23.

22) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} \operatorname{Sin}\left(rx^2+\frac{s}{x^2}\right) dx = \frac{\sqrt{\pi}}{2a} e^{-2ab \operatorname{Cos}(\alpha+\beta)} \operatorname{Sin}\{2ab \operatorname{Sin}(\alpha+\beta)+\alpha\}$ (IV, 384).

23) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} \operatorname{Cos}\left(rx^2+\frac{s}{x^2}\right) dx = \frac{\sqrt{\pi}}{2a} e^{-2ab \operatorname{Cos}(\alpha+\beta)} \operatorname{Cos}\{2ab \operatorname{Sin}(\alpha+\beta)+\alpha\}$ (IV, 384).

24) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} \operatorname{Sin}\left(rx^2-\frac{s}{x^2}\right) dx = \frac{\sqrt{\pi}}{2a} e^{-2ab \operatorname{Cos}(\alpha-\beta)} \operatorname{Sin}\{2ab \operatorname{Sin}(\alpha-\beta)+\alpha\}$ (IV, 384).

25) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} \operatorname{Cos}\left(rx^2-\frac{s}{x^2}\right) dx = \frac{\sqrt{\pi}}{2a} e^{-2ab \operatorname{Cos}(\alpha-\beta)} \operatorname{Cos}\{2ab \operatorname{Sin}(\alpha-\beta)+\alpha\}$ (IV, 384).

26) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} \operatorname{Sin} rx^2\,.\,\operatorname{Sin}\left(\frac{s}{x^2}\right) dx = \frac{\sqrt{\pi}}{4a}\Big\{e^{-2ab \operatorname{Cos}(\alpha-\beta)} \operatorname{Cos}\{2ab \operatorname{Sin}(\alpha-\beta)+\alpha\} -$

$- e^{-2ab \operatorname{Cos}(\alpha+\beta)} \operatorname{Cos}\{2ab \operatorname{Sin}(\alpha+\beta)+\alpha\}\Big\}$ V. T. 268, N. 23, 25.

27) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} \operatorname{Sin} rx^2\,.\,\operatorname{Cos}\left(\frac{s}{x^2}\right) dx = \frac{\sqrt{\pi}}{4a}\Big\{e^{-2ab \operatorname{Cos}(\alpha+\beta)} \operatorname{Sin}\{2ab \operatorname{Sin}(\alpha+\beta)+\alpha\} +$

$+ e^{-2ab \operatorname{Cos}(\alpha-\beta)} \operatorname{Sin}\{2ab \operatorname{Sin}(\alpha-\beta)+\alpha\}\Big\}$ V. T. 268, N. 22, 24.

28) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} \operatorname{Cos} rx^2\,.\,\operatorname{Sin}\left(\frac{s}{x^2}\right) dx = \frac{\sqrt{\pi}}{4a}\Big\{e^{-2ab \operatorname{Cos}(\alpha+\beta)} \operatorname{Sin}\{2ab \operatorname{Sin}(\alpha+\beta)+\alpha\} -$

$- e^{-2ab \operatorname{Cos}(\alpha-\beta)} \operatorname{Sin}\{2ab \operatorname{Sin}(\alpha-\beta)+\alpha\}\Big\}$ V. T. 268, N. 22, 24.

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29) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} Cos\, rx^2 . Cos\left(\frac{s}{x^2}\right) dx = \frac{\sqrt{\pi}}{4a} \left\{ e^{-2ab\,Cos(\alpha+\beta)} Cos\{2ab\,Sin(\alpha+\beta)+\alpha\} + \right.$

$\left. + e^{-2ab\,Cos(\alpha-\beta)} Cos\{2ab\,Sin(\alpha-\beta)+\alpha\} \right\}$ V. T. 268, N. 23, 25.

30) $\int e^{-p\frac{1+x^4}{x^2}-\frac{q^2x^2}{(1-x^2)^2}} Sin\left\{\frac{1+x^4}{x^2} p\, Tg\lambda\right\} dx = \frac{1}{2}\sqrt{\frac{\pi\, Cos\lambda}{p}} . e^{-2(gq+p)} Sin\left[\frac{1}{2}\{fq+p\,Tg\lambda+\lambda\}\right]$ (IV, 384).

31) $\int e^{-p\frac{1+x^4}{x^2}-\frac{q^2x^2}{(1-x^2)^2}} Cos\left\{\frac{1+x^4}{x^2} p\, Tg\lambda\right\} dx = \frac{1}{2}\sqrt{\frac{\pi\, Cos\lambda}{p}} . e^{-2(gq+p)} Cos\left[\frac{1}{2}\{fq+p\,Tg\lambda+\lambda\}\right]$ (IV, 384).

Dans 7) à 31) on a $a^4 = p^2+r^2$, $b^4 = q^2+s^2$, $c = \frac{q^2+s^2}{\sqrt{p^2+r^2}} Cos\left\{Arctg\frac{r}{q} - 2\,Arctg\frac{s}{q}\right\}$,

$f = \sqrt{\frac{-p+\sqrt{p^2+r^2}}{2}}$, $g = \sqrt{\frac{p+\sqrt{p^2+r^2}}{2}}$, $\alpha = \frac{1}{2} Arctg\frac{r}{p}$,

$\beta = \frac{1}{2} Arctg\frac{s}{q}$, $\gamma = \frac{q^2+s^2}{\sqrt{p^2+r^2}} Sin\left\{Arctg\frac{r}{p} - 2\,Arctg\frac{s}{q}\right\} + Arctg\frac{s}{q}$.

32) $\int e^{-qx} \binom{k-1}{k-r} Sin\{(p-k+r)x\} dx = \binom{k-1}{k-r} \frac{p-k+r}{(p-k+r)^2+q^2}$

33) $\int e^{-qx} \binom{k-1}{k-r} Cos\{(p-k+r)x\} dx = \binom{k-1}{k-r} \frac{q}{(p-k+r)^2+q^2}$

Sur 32) et 33) voyez Raabe. Dschr. Zür. 8, 1.

1) $\int e^{-q^2x^2} Sin\, px\, dx = 0$ (VIII, 516).

2) $\int e^{-q^2x^2} Sin\{p(x+\lambda)\} dx = \frac{\sqrt{\pi}}{q} e^{-\frac{p^2}{4q^2}} Sin\, p\lambda$ V. T. 269, N. 1, 10.

3) $\int e^{-q^2x^2} Cos\{p(x+\lambda)\} dx = \frac{\sqrt{\pi}}{q} e^{-\frac{p^2}{4q^2}} Cos\, p\lambda$ (IV, 385).

4) $\int e^{-q^2(x^2-2\lambda x)} Sin\, px\, dx = \frac{\sqrt{\pi}}{q} e^{-\frac{p^2}{4q^2}+q^2\lambda^2} Sin\, p\lambda$ V. T. 269, N. 2, 3.

5) $\int e^{-q^2(x^2-2\lambda x)} \, Cos\, px\, dx = \frac{\sqrt{\pi}}{q} e^{-\frac{p^2}{4q^2}+q^2\lambda^2} \, Cos\, p\lambda$ V. T. 269, N. 2, 3.

6) $$\int e^{-(px^2+qx+r)} \, Sin\,(sx^2+tx+u)\, dx = e^{-r+\frac{p(q^2-t^2)+2qst}{4(p^2+s^2)}} \, Sin \left\{u + \frac{(q^2-t^2)s-2pqt}{4(p^2+s^2)} + \frac{1}{2} Arctg \frac{s}{p}\right\} \sqrt{\frac{\pi}{\sqrt{p^2+s^2}}}$$ (IV, 386*).

7) $$\int e^{-(px^2+qx+r)} \, Cos\,(sx^2+tx+u)\, dx = e^{-r+\frac{p(q^2-t^2)+2qst}{4(p^2+s^2)}} \, Cos \left\{u + \frac{(q^2-t^2)s-2pqt}{4(p^2+s^2)} + \frac{1}{2} Arctg \frac{s}{p}\right\} \sqrt{\frac{\pi}{\sqrt{p^2+s^2}}}$$ (IV, 386*).

8) $$\int e^{-\left(x^2+\frac{p^2}{x^2}\right) Cos\,\lambda} \, Sin \left\{\left(x^2+\frac{p^2}{x^2}\right) Sin\,\lambda\right\} dx = e^{-2p\, Cos\,\lambda} \, Sin \left\{2p\, Sin\,\lambda + \frac{1}{2}\lambda\right\}.\sqrt{\pi}$$

9) $$\int e^{-\left(x^2+\frac{p^2}{x^2}\right) Cos\,\lambda} \, Cos \left\{\left(x^2+\frac{p^2}{x^2}\right) Sin\,\lambda\right\} dx = e^{-2p\, Cos\,\lambda} \, Cos \left\{2p\, Sin\,\lambda + \frac{1}{2}\lambda\right\}.\sqrt{\pi}$$

Sur 8) et 9) voyez Boole, Phil. Trans. 1857.

F. Expon. $e^{\pm ax}$; Circ. Dir.

TABLE 270.

Lim. 0 et $\frac{\pi}{2}$.

1) $\int e^{(q+1)xi} \, Sin^{q-1} x\, dx = \frac{1}{q} e^{\frac{1}{2}q\pi i}$ (VIII, 253).

2) $\int e^{(p+q)xi} \, Sin^{q-1} x\,.\, Cos^{p-1} x\, dx = e^{\frac{1}{2}q\pi i} \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}$ (VIII, 430).

3) $\int e^{2x} \, Sin^2 x\, dx = \frac{1}{8}(3e^{\pi}-1)$ (IV, 386).

4) $$\int e^{-px} \, Sin^{2a} x\, dx = \frac{1^{2a/1}}{(2^2+p^2)(4^2+p^2)\dots(4a^2+p^2)} \frac{1}{p} \left[1 - e^{-\frac{1}{2}p\pi}\left\{1 + \frac{p^2}{1.2} + \frac{p^2(2^2+p^2)}{1^{4/1}} + \dots + \frac{p^2(2^2+p^2)\dots\{(2a-2)^2+p^2\}}{1^{2a/1}}\right\}\right]$$ (VIII, 251).

5) $$\int e^{-px} \, Sin^{2a+1} x\, dx = \frac{1^{2a+1/1}}{(1^2+p^2)(3^2+p^2)\dots\{(2a+1)^2+p^2\}} \left[1 - p e^{-\frac{1}{2}p\pi}\left\{1 + \frac{1^2+p^2}{1.2.3} + \dots + \frac{(1^2+p^2)(3^2+p^2)\dots\{(2a-1)^2+p^2\}}{1^{2a+1/1}}\right\}\right]$$ (VIII, 251).

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6) $\int e^{-px} Cos^{2a} x\, dx = \frac{1^{2a/1}}{(2^2+p^2)(4^2+p^2)\dots(4a^2+p^2)} \frac{1}{p} \left[-e^{-\frac{1}{2}p\pi} + 1 + \frac{p^2}{1.2} + \frac{p^2(2^2+p^2)}{1^{4/1}} + \dots + \frac{p^2(2^2+p^2)\dots\{(2a-2)^2+p^2\}}{1^{2a/1}} \right]$ (VIII, 251).

7) $\int e^{-px} Cos^{2a+1} x\, dx = \frac{1^{2a+1/1}}{(1^2+p^2)(3^2+p^2)\dots\{(2a+1)^2+p^2\}} \left[e^{-\frac{1}{2}p\pi} + p \left\{ 1 + \frac{1^2+p^2}{1.2.3} + \dots + \frac{(1^2+p^2)(3^2+p^2)\dots\{(2a-1)^2+p^2\}}{1^{2a+1/1}} \right\} \right]$ (VIII, 251).

8) $\int (e^{2qx} + e^{-2qx}) Cos^{2b} x\, dx = \frac{\pi}{2^{2b+1}} \frac{1^{2b/1}}{\Gamma(b+qi+1)\Gamma(b-qi+1)}$ (IV, 386).

9) $\int \{ Sin(pe^{xi} Cos x) + Sin(pe^{-xi} Cos x) \} \frac{dx}{r^2 Cos^2 x + q^2 Sin^2 x} = \frac{\pi}{qr} Sin \frac{pq}{q+r}$ (VIII, 274*).

10) $\int \{ Cos(pe^{xi} Cos x) + Cos(pe^{-xi} Cos x) \} \frac{dx}{r^2 Cos^2 x + q^2 Sin^2 x} = \frac{\pi}{qr} Cos \frac{pq}{p+r}$ (VIII, 274*).

F. Exp. à exp. de Circ. Dir.; Circ. Dir. ent. — TABLE 271. — Lim. 0 et $\frac{\pi}{2}$.

1) $\int e^{-q Sin x} Sin 2x\, dx = \frac{2}{q^2} \{ (q-1)e^q + 1 \}$ V. T. 80, N. 1.

2) $\int e^{-q Tg x} dx = Ci(q). Sin q + Cos q . \left\{ \frac{\pi}{2} - Si(q) \right\}$ V. T. 91, N. 7.

3) $\int e^{-q Tg x} Tg\, x\, dx = -Ci(q) . Cos q + Sin q . \left\{ \frac{\pi}{2} - Si(q) \right\}$ V. T. 91, N. 8.

4) $\int (e^{q Sin x} - e^{-q Sin x}) Sin(q Cos x) . Sin 2ax\, dx = \frac{\pi}{2} \frac{(-1)^{a-1} q^{2a}}{1^{2a/1}}$ (IV, 387).

5) $\int (e^{q Sin x} + e^{-q Sin x}) Sin(q Cos x) . Cos \{ (2a-1)x \} dx = \frac{\pi}{2} \frac{(-1)^{a-1} q^{2a-1}}{1^{2a-1/1}}$ (IV, 387).

6) $\int (e^{q Sin x} - e^{-q Sin x}) Cos(q Cos x) . Sin \{ (2a-1)x \} dx = \frac{\pi}{2} \frac{(-1)^{a-1} q^{2a-1}}{1^{2a-1/1}}$ (IV, 387).

7) $\int (e^{q Sin x} + e^{-q Sin x}) Cos(q Cos x) . Cos 2ax\, dx = \frac{\pi}{2} \frac{(-1)^a q^{2a}}{1^{2a/1}}$ (IV, 387).

8) $\int e^{p Cos 2x} Sin(p Sin 2x) . Tg\, x\, dx = \frac{\pi}{2} (1 - e^{-p})$ (VIII, 562*).

1) $\int e^{-q\,Tg\,x} \frac{Tg^p\,x}{Sin\,2x}\,dx = \frac{1}{2q^p}\Gamma(p)\,[p > -1]$ V. T. 81, N. 1.

2) $\int e^{-q\,Cot\,x} \frac{dx}{Tg\,x} = -Ci(q).Cos\,q + Sin\,q.\left\{\frac{\pi}{2} - Si(q)\right\}$ V. T. 91, N. 8.

3) $\int e^{-q\,Tg\,x} \frac{dx}{Cos\,2x} = \frac{1}{2}\left\{e^{-q}\,Ei(q) - e^{q}\,Ei(-q)\right\}$ V. T. 91, N. 14.

4) $\int e^{-q\,Tg\,x} \frac{Tg\,x}{Cos\,2x}\,dx = \frac{1}{2}\left\{e^{-q}\,Ei(q) + e^{q}\,Ei(-q)\right\}$ V. T. 91, N. 15.

5) $\int e^{q\,Cos^2 x}\,Sin(q\,Sin\,2x)\frac{dx}{Tg\,x} = \frac{\pi}{2}(e^{q} - 1)$ (VIII, 562*).

6) $\int e^{-q\,Tg^2 x} \frac{Tg^{2a}\,x}{Sin\,2x}\,dx = \frac{1}{4p^a}1^{a-1/1}$ V. T. 81, N. 7.

7) $\int e^{-q\,Tg^2 x} \frac{Tg^{2a+1}\,x}{Sin\,2x}\,dx = \frac{1}{4}\,\frac{1^{a/1}}{(2p)^a}\sqrt{\frac{\pi}{p}}$ V. T. 81, N. 6.

8) $\int e^{-Tg^p\,x} \frac{Tg^q\,x}{Sin\,2x}\,dx = \frac{1}{2p}\Gamma\left(\frac{q}{p}\right)$ V. T. 81, N. 8.

9) $\int e^{-q\,Tg^2 x} \frac{dx}{Cos^2 x} = \frac{1}{2}\sqrt{\frac{\pi}{p}}$ V. T. 26, N. 2.

10) $\int e^{-q\,Tg^2 x} \frac{Tg^{2a}\,x}{Cos^2 x}\,dx = \frac{1^{a/2}}{p^a.2^{a+1}}\sqrt{\frac{\pi}{p}}$ V. T. 81, N. 6.

11) $\int e^{-q\,Tg^2 x} \frac{dx}{Cos^4 x} = \frac{1+2p}{4p}\sqrt{\frac{\pi}{p}}$ V. T. 272, N. 9, 10.

12) $\int e^{-q\,Tg^2 x} \frac{Cos\,2x}{Cos^4 x}\,dx = \frac{2p-1}{4q}\sqrt{\frac{\pi}{p}}$ V. T. 272, N. 9, 10.

13) $\int \frac{e^{-p\,Tg\,x} - Cos^2 x}{Sin\,2x}\,dx = -\frac{1}{2}A - \frac{1}{2}lp$ V. T. 92, N. 11.

14) $\int \frac{e^{-p\,Tg\,x} - e^{-q\,Tg\,x}}{Sin\,2x}\,dx = \frac{1}{2}l\frac{q}{p}$ V. T. 89, N. 2.

15) $\int e^{-p^2\,Tg^2 x - q^2\,Cot^2 x} \frac{dx}{Sin^2 x} = \frac{1}{2q}e^{-2pq}\sqrt{\pi}$ V. T. 89, N. 1.

16) $\int e^{-p\,Tg^2 x - q\,Cot^2 x} \frac{Cos^{2(a-1)}x}{Sin^{2a}x}\,dx = \frac{1}{2}\left(\frac{p}{q}\right)^{\frac{1}{2}a} e^{-2\sqrt{pq}}\sqrt{\frac{\pi}{p}}.\sum_{0}^{\infty}\frac{(a-n)^{2n/1}}{1^{n/1}}\left(\frac{1}{4\sqrt{pq}}\right)^n$ V. T. 90, N. 2.

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17) $\int e^{-p\,Tg^2 x - q^2\,Cot^2 x}\frac{dx}{Cos^2 x} = \frac{1}{2p}e^{-2pq}\sqrt{\pi}$ V. T. 89, N. 1.

18) $\int e^{-q(Tg^2 x + Cot^2 x)}\frac{Tg^{2a+1} x}{Sin\,2x}dx = \frac{1}{4}e^{-2q}\sqrt{\frac{\pi}{q}}.\sum_0^{a+1}\frac{1}{(2q)^n}\frac{(a-n+1)^{2n/1}}{2^n 1^{n/1}}$ V. T. 81, N. 10.

F. Exp. à exp. de Circ. Dir.; Circ. Dir. en dén. d' autre forme. TABLE 273. Lim. 0 et $\frac{\pi}{2}$.

1) $\int e^{-p\,Cot x}\frac{dx}{Cos\,2x\,.\,Tg\,x} = -\frac{1}{2}\{e^{-p}\,Ei(p) + e^{p}\,Ei(-p)\}$ V. T. 91, N. 15.

2) $\int e^{-p\,Cot x}\frac{dx}{Sin\,2x\,.\,Tg^p\,x} = \frac{1}{2q^{p}}\Gamma(p)$ $[p > -1]$ V. T. 81, N. 1.

3) $\int e^{-p\,Cot^2 x}\frac{dx}{Sin\,2x\,.\,Tg^{2a}\,x} = \frac{1^{a-1/1}}{4p^a}$ V. T. 81, N. 7.

4) $\int e^{-p\,Cot^2 x}\frac{dx}{Sin\,x\,.\,Tg^{2a+1}\,x} = \frac{1}{4}\frac{1^{a/2}}{(2p)^a}\sqrt{\frac{\pi}{p}}$ V. T. 81, N. 6.

5) $\int e^{-Cot^p x}\frac{dx}{Sin\,2x\,.\,Tg^q\,x} = \frac{1}{2p}\Gamma\left(\frac{q}{p}\right)$ V. T. 81, N. 8.

6) $\int e^{-q(Tg^2 x + Cot^2 x)}\frac{dx}{Tg^{2a+1}x\,.\,Sin\,2x} = \frac{1}{4}e^{-2q}\sqrt{\frac{\pi}{q}}.\sum_0^{a+1}\frac{1}{(2q)^n}\frac{(a-n+1)^{2n/1}}{2^n 1^{n/1}}$ V. T. 81, N. 10.

7) $\int \frac{(e^{xi}\,Cos\,x)^p + (e^{-xi}\,Cos\,x)^p}{Cos^2 x + q^2\,Sin^2 x}dx = \frac{\pi}{q}\left(\frac{q}{q+1}\right)^p$ (VIII, 611).

8) $\int \frac{e^{p\,Cos^2 x}\,Cos(p\,Sin\,2x)}{Cos^2 x + q^2\,Sin^2 x}dx = \frac{\pi}{2q}e^{p\frac{q-1}{q+1}}$ (IV, 395*).

9) $\int \frac{e^{p\,Sin\,2x} + e^{-p\,Sin\,2x}}{r^2\,Cos^2 x + q^2\,Sin^2 x}Sin(2p\,Cos^2 x)\,dx = \frac{\pi}{qr}Sin\left(\frac{2pq}{q+r}\right)$ (VIII, 275).

10) $\int \frac{e^{p\,Sin\,2x} + e^{-p\,Sin\,2x}}{r^2\,Cos^2 x + q^2\,Sin^2 x}Cos(2p\,Cos^2 x)\,dx = \frac{\pi}{qr}Cos\left(\frac{2pq}{q+r}\right)$ (VIII, 275).

11) $\int \frac{e^{-p\,Tg\,x}}{Sin\,2x \pm q\,Cos\,2x \pm q}dx = -\frac{1}{2}e^{\pm pq}\,Ei(\mp pq)$ V. T. 91, N. 1, 4.

12) $\int \frac{e^{-p\,Cot\,x}}{Sin\,2x \pm q\,Cos\,2x \mp q}dx = -\frac{1}{2}e^{\mp pq}\,Ei(\pm pq)$ V. T. 91, N. 1, 4.

F. Exp. à exp. de Circ. Dir.; Circ. Dir. en dén. d'autre forme.	TABLE 273, suite.	Lim. 0 et $\frac{\pi}{2}$.

13) $\int \frac{e^{-p\, Tg\, x}\, Sin\, 2x}{(1-q^2)-2q^2\, Cos\, 2x-(1+q^2)\, Cos^2\, 2x}\, dx = -\frac{1}{4}\left\{e^{-pq}\, Ei(pq)+e^{pq}\, Ei(-pq)\right\}$

V. T. 273, N. 11.

14) $\int \frac{e^{-p\, Cot\, x}\, Sin\, 2x}{(1-q^2)+2q^2\, Cos\, 2x-(1+q^2)\, Cos^2\, 2x}\, dx = -\frac{1}{4}\left\{e^{-pq}\, Ei(pq)+e^{pq}\, Ei(-pq)\right\}$

V. T. 273, N. 12.

F. Exp. en dén. polynôme; Circ. Dir. en numér.	TABLE 274.	Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{dx}{e^{\frac{1}{4}\pi\, Tg\, x}+e^{-\frac{1}{4}\pi\, Tg\, x}} = \frac{1}{2\sqrt{2}}\left\{\pi - l\,\frac{\sqrt{2}+1}{\sqrt{2}-1}\right\}$ V. T. 97, N. 3.

2) $\int \frac{dx}{e^{\frac{1}{2}\pi\, Tg\, x}+e^{-\frac{1}{2}\pi\, Tg\, x}} = \frac{1}{2}\, l2$ V. T. 97, N. 2.

3) $\int \frac{dx}{e^{\pi\, Tg\, x}+e^{-\pi\, Tg\, x}} = \frac{4-\pi}{4}$ V. T. 97, N. 1.

4) $\int \frac{Tg\, x}{e^{\frac{1}{4}\pi\, Tg\, x}-e^{-\frac{1}{4}\pi\, Tg\, x}}\, dx = \frac{\pi}{4}\sqrt{2}-1+\frac{1}{4}\sqrt{2}\,.\, l\,\frac{\sqrt{2}+1}{\sqrt{2}-1}$ V. T. 97, N. 9.

5) $\int \frac{Tg\, x}{e^{\frac{1}{2}\pi\, Tg\, x}-e^{-\frac{1}{2}\pi\, Tg\, x}}\, dx = \frac{\pi-2}{4}$ V. T. 97, N. 8.

6) $\int \frac{Tg\, x}{e^{\pi\, Tg\, x}-e^{-\pi\, Tg\, x}}\, dx = \frac{1}{2}\left(-\frac{1}{2}+l2\right)$ V. T. 97, N. 7.

7) $\int \frac{Tg\, x}{e^{2\pi\, Tg\, x}-1}\, dx = \frac{1}{2}\,A-\frac{1}{4}$ V. T. 97, N. 14.

8) $\int \frac{Tg\, x}{e^{2q\pi\, Tg\, x}-1}\, dx = \frac{1}{2}\, lq+\frac{1}{4q}-\frac{1}{2}\, Z'(q+1)$ V. T. 97, N. 15.

9) $\int \frac{e^{p\, Tg\, x}-e^{-p\, Tg\, x}}{e^{\pi\, Tg\, x}-e^{-\pi\, Tg\, x}}\, dx = -\frac{1}{2}\, p\, Cos\, p+\frac{1}{2}\, Sin\, p\,.\, l\{2(1+Cos\, p)\}$ $[0<p\leqq\pi]$ V. T. 97, N. 10.

10) $\int \frac{e^{p\, Tg\, x}+e^{-p\, Tg\, x}}{e^{\frac{1}{2}\pi\, Tg\, x}-e^{-\frac{1}{2}\pi\, Tg\, x}}\, Tg\, x\, dx = -1+\frac{\pi}{2}\, Cos\, p+\frac{1}{2}\, Sin\, p\,.\, l\,\frac{1+Sin\, p}{1-Sin\, p}$ $\left[0\leqq p\leqq\frac{\pi}{2}\right]$ V. T. 97, N. 13.

11) $\int \frac{e^{p\, Tg\, x}-e^{-p\, Tg\, x}}{e^{\frac{1}{2}\pi\, Tg\, x}-e^{-\frac{1}{2}\pi\, Tg\, x}}\, dx = \frac{\pi}{2}\, Sin\, p-\frac{1}{2}\, Cos\, p\,.\, l\,\frac{1+Sin\, p}{1-Sin\, p}$ $\left[0\leqq p\leqq\frac{\pi}{2}\right]$ V. T. 97, N. 11.

12) $\int \frac{e^{p\, Tg\, x}+e^{-p\, Tg\, x}}{e^{\pi\, Tg\, x}-e^{-\pi\, Tg\, x}}\, Tg\, x\, dx = \frac{1}{2}(p\, Sin\, p-1)+\frac{1}{2}\, Cos\, p\,.\, l\{2(1+Cos\, p)\}$ $[0<p<\pi]$ V. T. 97, N. 12.

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13) $\int \frac{e^{(r-p)Tg x} - e^{(p-r)Tg x}}{e^{r Tg x} - e^{-r Tg x}} dx = \pi \sum_1^\infty \frac{Sin \frac{n p \pi}{r}}{n\pi + r}$ $[p^2 < r^2]$ V. T. 97, N. 18.

14) $\int \frac{e^{(r-p)Tg x} + e^{(p-r)Tg x}}{e^{r Tg x} - e^{-r Tg x}} Tg x \, dx = \frac{\pi}{2r} + \pi \sum_1^\infty \frac{Cos \frac{n p \pi}{r}}{n\pi + r}$ $[p^2 \leqq r^2]$ V. T. 97, N. 19.

F. Exp. en dén. polynôme; Circ. Dir. en dén. TABLE 275. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{Tg^q x}{e^{p Tg x} + 1} \frac{dx}{Sin 2x} = \frac{1}{2p^q} \Gamma(q) \sum_0^\infty \frac{(-1)^n}{(n+1)^q}$ V. T. 83, N. 6.

2) $\int \frac{Tg^q x}{e^{p Tg x} - 1} \frac{dx}{Sin 2x} = \frac{1}{2p^q} \Gamma(q) \sum_0^\infty \frac{1}{(n+1)^q}$ V. T. 83, N. 7.

3) $\int \frac{1}{e^{p Tg x} - 1} \frac{Tg x}{Cos 2x} dx = \frac{\pi^2}{p^2} \sum_0^\infty (-1)^n \left(\frac{2\pi}{p}\right)^{2n} \frac{1}{n+1} B_{2n+1}$ V. T. 97, N. 21*.

4) $\int \frac{1}{e^{p Tg x} - 1} \frac{Sin 2x}{Cos^2 2x} dx = \frac{2\pi^2}{p^2} \sum_0^\infty (-1)^n \left(\frac{2\pi}{p}\right)^{2n} B_{2n+1}$ V. T. 97, N. 23*.

5) $\int \frac{1}{e^{p Tg x} - 1} \frac{Sin^2 x}{Tg x} dx = \frac{\pi^2}{p^2} \sum_0^\infty \left(\frac{2\pi}{p}\right)^{2n} B_{2n+1}$ V. T. 97, N. 22*.

6) $\int \frac{Sin 2ax}{e^{2\pi Cot x} - 1} \frac{dx}{Sin^{2a+2} x} = (-1)^a \frac{2a-1}{4(2a+1)}$

7) $\int \frac{Sin 2ax}{e^{\pi Cot x} - 1} \frac{dx}{Sin^{2a+2} x} = (-1)^a \frac{a}{2a+1}$

8) $\int \frac{Sin 2ax}{e^{\pi Cot x} - e^{-\pi Cot x}} \frac{dx}{Sin^{2a+2} x} = (-1)^a \frac{1}{4}$

Sur 6) à 8) voyez Catalan, C. R. 54, 1059.

9) $\int \frac{1}{e^{p Cot x} + 1} \frac{dx}{Tg^q x . Sin 2x} = \frac{1}{2p^q} \Gamma(q) \sum_0^\infty \frac{(-1)^n}{(n+1)^q}$ V. T. 83, N. 6.

10) $\int \frac{1}{e^{p Cot x} - 1} \frac{dx}{Tg^q x . Sin 2x} = \frac{1}{2p^q} \Gamma(q) \sum_0^\infty \frac{1}{(n+1)^q}$ V. T. 83, N. 7.

11) $\int \frac{e^{-p Tg x} - e^{-q Tg x}}{e^{-Tg x} + 1} \frac{dx}{Sin 2x} = \frac{1}{2} l \frac{\Gamma\left(\frac{1}{2}p\right) \Gamma\left(\frac{q+1}{2}\right)}{\Gamma\left(\frac{1}{2}q\right) \Gamma\left(\frac{p+1}{2}\right)}$ V. T. 93, N. 6.

12) $\int \frac{e^{q Tg x} - e^{-q Tg x}}{e^{p Tg x} + e^{-p Tg x}} \frac{dx}{Sin 2x} = \frac{1}{2} l \, Tg \left\{\frac{p+q}{4p} \pi\right\}$ V. T. 95, N. 3.

13) $\int \frac{(e^{q\,Tg\,x}-e^{-q\,Tg\,x})^2}{e^{Tg\,x}+1}\,\frac{dx}{Sin\,2x} = -\frac{1}{2}\,l\,(q\pi\,Cotg\,q\pi)$ V. T. 93, N. 9.

14) $\int \frac{(e^{q\,Tg\,x}-e^{-q\,Tg\,x})^2}{e^{p\,Tg\,x}-e^{-p\,Tg\,x}}\,\frac{dx}{Sin\,2x} = \frac{1}{2}\,l\,Sec\,\frac{q\pi}{p}$ V. T. 95, N. 5.

15) $\int \frac{Sin\left(\frac{\pi}{b}\,Sin\,x\right).Sin\{(2a-1)x\}}{e^{\frac{\pi}{b}Cos\,x}+2\,Cos\left(\frac{\pi}{b}\,Sin\,x\right)+e^{-\frac{\pi}{b}Cos\,x}}\,dx = \frac{(-1)^{a-1}}{1^{2a-1/1}}\,\frac{2^{2a}-1}{8a}\,b\left(\frac{\pi}{b}\right)^{2a} B_{2a-1}$ (IV, 391).

16) $\int \frac{e^{\frac{\pi}{2b}Cos\,x}-e^{-\frac{\pi}{2b}Cos\,x}}{e^{\frac{\pi}{b}Cos\,x}+2\,Cos\left(\frac{\pi}{b}\,Sin\,x\right)+e^{-\frac{\pi}{b}Cos\,x}}\,Sin\left(\frac{\pi}{2b}\,Sin\,x\right).Sin\,2ax\,dx = \frac{(-1)^{a-1}}{4}\,\frac{b}{1^{2a/1}}\left(\frac{\pi}{2b}\right)^{2a+1} B_{2a}$ (IV, 391).

17) $\int \frac{e^{\frac{\pi}{2b}Cos\,x}+e^{-\frac{\pi}{2b}Cos\,x}}{e^{\frac{\pi}{b}Cos\,x}+2\,Cos\left(\frac{\pi}{2b}\,Sin\,x\right)+e^{-\frac{\pi}{b}Cos\,x}}\,Cos\left(\frac{\pi}{2b}\,Sin\,x\right)dx = \frac{1}{2}\pi$ (IV, 391).

18) $\int \frac{e^{\frac{\pi}{b}Cos\,x}-e^{-\frac{\pi}{b}Cos\,x}}{e^{\frac{\pi}{b}Cos\,x}+2\,Cos\left(\frac{\pi}{b}\,Sin\,x\right)+e^{-\frac{\pi}{b}Cos\,x}}\,Cos\{(2a-1)x\}\,dx = \frac{(-1)^{a-1}}{1^{2a-1/1}}\,\frac{2^{2a}-1}{8a}\,b\left(\frac{\pi}{b}\right)^{2a} B_{2a-1}$ (IV, 391).

19) $\int \frac{e^{\frac{\pi}{2b}Cos\,x}+e^{-\frac{\pi}{2b}Cos\,x}}{e^{\frac{\pi}{b}Cos\,x}+2\,Cos\left(\frac{\pi}{b}\,Sin\,x\right)+e^{-\frac{\pi}{b}Cos\,x}}\,Cos\left(\frac{\pi}{2b}\,Sin\,x\right).Cos\,2ax\,dx = \frac{(-1)^{a}}{4}\,\frac{b}{1^{2a/1}}\left(\frac{\pi}{2b}\right)^{2a+1} B_{2a}$ (IV, 391).

20) $\int \frac{Tg^q\,x}{e^{Tg\,x}+e^{-Tg\,x}+2\,Cos\,\lambda}\,\frac{dx}{Sin\,2x} = \frac{\Gamma(q)}{2\,Sin\,\lambda}\sum_1^\infty (-1)^{n-1}\frac{Sin\,n\lambda}{n^q}$ V. T. 96, N. 4.

21) $\int \frac{Sin\,2x.Sin^{4a+2}x - Sin^2x.Sin\{(4a+2)x\}+Sin\,4ax}{1-2\,Cos\,2x.Sin^2x+Sin^4x}\,\frac{dx}{(e^{2\pi\,Cot\,x}-1)\,Sin^{4a+2}x} =$

$= \frac{1}{4}\sum_1^a\left(\frac{4n-3}{4n-1}-\frac{4n-1}{4n+1}\right)$ Catalan, C. R. 54, 1059.

F. Exponent.; Circ. Dir. de forme irrat. — TABLE 276. — Lim. 0 et $\frac{\pi}{2}$.

1) $\int e^{-q\,Tg\,x}\,\frac{Tang^a\,x}{Cos\,x.\sqrt{Sin\,2x}}\,dx = \frac{1^{a/1}}{(2q)^a}\sqrt{\frac{\pi}{2q}}$ V. T. 98, N. 2.

2) $\int e^{-\frac{1}{q}Cosec^2 x}\,\frac{\sqrt{Sin\,2x}}{Cos^3\,x}\,dx = \frac{1+q}{\sqrt[q]{e}}\,2\sqrt{q\pi}$ V. T. 98, N. 3.

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3) $\int e^{-q\, Tg\, x} \frac{dx}{Cos\, x . \sqrt{Sin\, 2x}} = \sqrt{\frac{\pi}{2q}}$ V. T. 98, N. 10.

4) $\int e^{-\frac{1}{q} Cosec\, 2x} \frac{dx}{Cos\, x . \sqrt{Sin\, 2x}} = \frac{\sqrt{q\pi}}{\sqrt[q]{e}}$ V. T. 98, N. 12.

5) $\int e^{-\frac{1}{q} Cosec\, 2x} \frac{Tg^p\, x}{Sin\, x . \sqrt{Sin\, 2x}} dx = \frac{\sqrt{\pi q}}{\sqrt[q]{e}} \sum_0^\infty \frac{(p-n)^{2n/1}}{2^{n/1}} q^n$ V. T. 98, N. 17.

6) $\int e^{-\frac{1}{q} Cosec\, 2x} \frac{dx}{Cos\, x . Tg^p x . \sqrt{Sin\, 2x}} = \frac{\sqrt{2\pi q}}{\sqrt[q]{e}} \sum_0^\infty \frac{(p-n)^{2n/1}}{2^{n/1}} q^n$ V. T. 98, N. 17.

7) $\int e^{-\frac{1}{q} Cosec\, x} \frac{dx}{Tg\, x . \sqrt{Sin\, x . (1 - Sin\, x)}} = \frac{\sqrt{q\pi}}{\sqrt[q]{e}}$ V. T. 104, N. 11.

8) $\int e^{-\frac{1}{q} Sec\, x} \frac{Tg\, x}{\sqrt{Cos\, x . (1 - Cos\, x)}} dx = \frac{\sqrt{q\pi}}{\sqrt[q]{e}}$ V. T. 104, N. 11.

9) $\int e^{-q^2 (Tg\, x + Cot\, x)} \frac{dx}{Cos\, x . \sqrt{Sin\, 2x}} = \frac{1}{2q} e^{-2q^2} \sqrt{2\pi}$ V. T. 98, N. 12.

10) $\int e^{-p\, Tg\, x - q\, Cot\, x} \frac{dx}{Cos\, x . \sqrt{Sin\, 2x}} = e^{-2\sqrt{pq}} \sqrt{\frac{\pi}{2p}}$ V. T. 98, N. 15.

11) $\int e^{-q^2 (Tg\, x + Cot\, x)} \frac{dx}{Sin\, x . \sqrt{Sin\, 2x}} = \frac{1}{2q} e^{-2q^2} \sqrt{2\pi}$ V. T. 98, N. 12.

12) $\int e^{-p\, Tg\, x - q\, Cot\, x} \frac{dx}{Tg^a x . Cos\, x . \sqrt{Sin\, 2x}} = \left(\frac{p}{q}\right)^{\frac{1}{2}a} e^{-2\sqrt{pq}} \sqrt{\frac{\pi}{2p}} . \sum_0^\infty \frac{(a-n)^{2n/1}}{2^{n/1} (2\sqrt{pq})^n}$ V. T. 98, N. 17.

13) $\int \frac{1}{e^{Tg\, x} + e^{-Tg\, x}} \frac{dx}{Cos\, x . \sqrt{Sin\, 2x}} = \sqrt{\frac{\pi}{2}} . \sum_0^\infty \frac{(-1)^n}{\sqrt{2n+1}}$ V. T. 98, N. 25.

14) $\int \frac{1}{e^{Tg\, x} + e^{-Tg\, x} + 1} \frac{dx}{Cos\, x . \sqrt{Sin\, 2x}} = \frac{\sqrt{2\pi}}{2\, Sin\, \frac{1}{3}\pi} \sum_1^\infty (-1)^{n-1} \frac{Sin\, \frac{1}{3} n\pi}{\sqrt{n}}$ V. T. 98, N. 26.

F. Exponent.; Circ. Dir. } Forme entière. TABLE 277. Lim. 0 et π.

1) $\int e^{ax} Sin^b x\, dx = \frac{\pi}{2^b} \frac{e^{\frac{1}{2} a\pi} 1^{b/1}}{\Gamma\left(\frac{a+bi}{2}+1\right) \Gamma\left(\frac{a-bi}{2}+1\right)}$ (IV, 394).

2) $\int e^{2\, Cos\, x} dx = \pi \sum_0^\infty \frac{1}{(1^{n/1})^2}$

3) $\int e^{2\, Cos\, x} Cos\, x\, dx = \pi \sum_0^\infty \frac{1}{1^{n/1}\, 1^{n+1/1}}$

Sur 2) et 3) voyez Spitzer, Gr. 25, 137.

4) $\int e^{p\,Cos\,x}\, Cos\,(p\,Sin\,x)\,dx = \pi\ [p^2 \leqq 1]$ (VIII, 276).

5) $\int e^{p\,Cos\,x}\, Sin\,(2x + p\,Sin\,x)\,dx = \frac{1}{p^2}\{(p-1)e^{p} + (p+1)e^{-p}\}$ Vernier, A. M. 15, 165.

6) $\int e^{p\,Cos\,x}\, Cos\,(ax + p\,Sin\,x)\,dx = 0$ V. T. 277, N. 7, 8.

7) $\int e^{p\,Cos\,x}\, Sin\,(p\,Sin\,x)\,.\,Sin\,ax\,dx = \frac{\pi}{2}\,\frac{p^a}{1^{a/1}}$ (VIII, 276).

8) $\int e^{p\,Cos\,x}\, Cos\,(p\,Sin\,x)\,.\,Cos\,ax\,dx = \frac{\pi}{2}\,\frac{p^a}{1^{a/1}}$ (VIII, 276).

9) $\int e^{p\,Cos\,x}\, Cos\,(ax - p\,Sin\,x)\,dx = \frac{p^a\,\pi}{1^{a/1}}$ V. T. 277, N. 7, 8.

10) $\int e^{p\,Cos\,x\,.\,Cos\,\lambda}\, Sin\,(p\,Cos\,x\,.\,Sin\,\lambda)\,dx = \sum_{1}^{\infty} \frac{Sin\,2n\lambda}{(1^{n/1})^2} \left(\frac{p}{2}\right)^{2n}$

11) $\int e^{p\,Cos\,x\,.\,Cos\,\lambda}\, Cos\,(p\,Cos\,x\,.\,Sin\,\lambda)\,dx = \sum_{0}^{\infty} \frac{Cos\,2n\lambda}{(1^{n/1})^2} \left(\frac{p}{2}\right)^{2n}$

12) $\int e^{p\,Cos\,x\,.\,Cos\,\lambda}\, Cos\,x\,.\,Sin\,(p\,Cos\,x\,.\,Sin\,\lambda)\,dx = \sum_{0}^{\infty} \frac{Sin\,\{(2n+1)\lambda\}}{1^{n/1}\,1^{n+1/1}} \left(\frac{p}{2}\right)^{2n+1}$

13) $\int e^{p\,Cos\,x\,.\,Cos\,\lambda}\, Cos\,x\,.\,Cos\,(p\,Cos\,x\,.\,Sin\,\lambda)\,dx = \sum_{0}^{\infty} \frac{Cos\,\{(2n+1)\lambda\}}{1^{n/1}\,1^{n+1/1}} \left(\frac{p}{2}\right)^{2n+1}$

Sur 10) à 13) voyez Spitzer, Schl. Z. 8, 292.

14) $\int e^{r(Cos\,px + Cos\,qx)}\, Sin\,(r\,Sin\,px)\,.\,Sin\,(r\,Sin\,qx)\,dx = \frac{\pi}{2} \sum_{1}^{\infty} \frac{1}{1^{pn/1}}\,\frac{1}{1^{qn/1}}\, r^{(p+q)n}$ (VIII, 634).

15) $\int e^{r(Cos\,px + Cos\,qx)}\, Cos\,(r\,Sin\,px)\,.\,Cos\,(r\,Sin\,qx)\,dx = \frac{\pi}{2} \left\{2 + \sum_{1}^{\infty} \frac{1}{1^{pn/1}}\,\frac{1}{1^{qn/1}}\, r^{(p+q)n}\right\}$ (VIII, 634).

16) $\int e^{p^a\,Cos\,ax + q^b\,Cos\,bx}\, Sin\,(p^a\,Sin\,ax)\,.\,Sin\,(q^b\,Sin\,bx)\,dx = \frac{\pi}{2} \sum_{1}^{\infty} \frac{1}{1^{an/1}}\,\frac{1}{1^{bn/1}}\,(pq)^{abn}$ (VIII, 634).

17) $\int e^{p^a\,Cos\,ax + q^b\,Cos\,bx}\, Cos\,(p^a\,Sin\,ax)\,.\,Cos\,(q^b\,Sin\,bx)\,dx = \pi + \frac{\pi}{2} \sum_{1}^{\infty} \frac{1}{1^{an/1}}\,\frac{1}{1^{bn/1}}\,(pq)^{abn}$ (VIII, 634).

18) $\int e^{p^a\,Cos\,ax + q^b\,Cos\,bx}\, Cos\,(p^a\,Sin\,ax + q^b\,Sin\,bx)\,dx = \pi$ V. T. 277, N. 16, 17.

19) $\int e^{p^a\,Cos\,ax + q^b\,Cos\,bx}\, Cos\,(p^a\,Sin\,ax - q^b\,Sin\,bx)\,dx = \pi \left\{1 + \sum_{1}^{\infty} \frac{1}{1^{an/1}}\,\frac{1}{1^{bn/1}}\,(pq)^{abn}\right\}$

V. T. 277, N. 16, 17.

20) $\int (e^{p \operatorname{Sin} x} + e^{-p \operatorname{Sin} x}) \{ e^{q \operatorname{Sin} x} \operatorname{Sin}(x + q \operatorname{Cos} x) - e^{-q \operatorname{Sin} x} \operatorname{Sin}(x - q \operatorname{Cos} x) \} \operatorname{Cos}(p \operatorname{Cos} x)\, dx =$

$= 2 q \pi \{ 2 + \sum_1^\infty \frac{(pq)^{2n}}{(2n+1) \{ 1^{2n/1} \}^2}$ (VIII, 633).

21) $\int (e^{p \operatorname{Sin} x} - e^{-p \operatorname{Sin} x}) \{ e^{q \operatorname{Sin} x} \operatorname{Cos}(x + q \operatorname{Cos} x) - e^{-q \operatorname{Sin} x} \operatorname{Cos}(x - q \operatorname{Cos} x) \} \operatorname{Sin}(p \operatorname{Cos} x)\, dx =$

$= 2 q \pi \sum_1^\infty \frac{(pq)^{2n}}{(2n+1) \{ 1^{2n/1} \}^2}$ (VIII, 633).

F. Exponent.; Circ. Dir. } Forme fractionnaire. TABLE 278. Lim. 0 et π.

1) $\int e^{p \operatorname{Cos} x} \operatorname{Sin}(p \operatorname{Sin} x) \frac{dx}{\operatorname{Sin} x} = \frac{\pi}{2} (e^p - e^{-p})$ (VIII, 562).

2) $\int e^{p \operatorname{Cos} x} \operatorname{Cos}(p \operatorname{Sin} x) \frac{dx}{\operatorname{Cos} x} = \infty$ (VIII, 563).

3) $\int e^{p \operatorname{Cos} x} \operatorname{Cos}(p \operatorname{Sin} x) \frac{\operatorname{Sin} 2ax}{\operatorname{Sin} x}\, dx = \frac{\pi}{p} \sum_0^a \frac{p^{2a-n}}{1^{2a-2n-1/1}}$ Vernier, A. M. 15, 165.

4) $\int \frac{e^{p \operatorname{Cos} x} \operatorname{Cos}(p \operatorname{Sin} x)}{(1+q^2) + (1-q^2) \operatorname{Cos} x}\, dx = \frac{\pi}{2q} e^{p \frac{q-1}{q+1}}$ (IV, 395*).

5) $\int \frac{e^{p \operatorname{Sin} x} + e^{-p \operatorname{Sin} x}}{s - t \operatorname{Cos} x} \operatorname{Sin}(p \operatorname{Cos} x)\, dx = \frac{\pi}{2\sqrt{s^2 - t^2}} \operatorname{Sin} \left\{ p \frac{s - \sqrt{s^2 - t^2}}{2t} \right\}$ $[s > t]$ (VIII, 275).

6) $\int \frac{e^{p \operatorname{Sin} x} + e^{-p \operatorname{Sin} x}}{s - t \operatorname{Cos} x} \operatorname{Cos}(p \operatorname{Cos} x)\, dx = \frac{\pi}{2\sqrt{s^2 - t^2}} \operatorname{Cos} \left\{ p \frac{s - \sqrt{s^2 - t^2}}{2t} \right\}$ $[s > t]$ (VIII, 275).

7) $\int e^{p \operatorname{Cos} rx} \frac{\operatorname{Sin}(p \operatorname{Sin} rx) . \operatorname{Sin} rx}{p^2 - 2pq \operatorname{Cos} rx + q^2}\, dx = \frac{\pi}{2pqr} (e^q - 1)$ $[p^2 > q^2]$ (VIII, 559*).

8) $\int e^{p \operatorname{Cos} rx} \frac{\operatorname{Cos}(p \operatorname{Sin} rx)}{p^2 - 2pq \operatorname{Cos} rx + q^2}\, dx = \frac{1}{p^2 - q^2} \frac{\pi}{r} e^q$ $[p^2 > q^2]$ (VIII, 560).

9) $\int e^{p \operatorname{Cos} rx} \frac{\operatorname{Sin} x}{p^2 - 2pq \operatorname{Cos} x + q^2} \operatorname{Sin}(p \operatorname{Sin} rx)\, dx = \frac{\pi}{2pq} (e^{qr} - 1)$ (VIII, 634).

10) $\int e^{p \operatorname{Cos} rx} \frac{p - q \operatorname{Cos} x}{p^2 - 2pq \operatorname{Cos} x + q^2} \operatorname{Cos}(p \operatorname{Sin} rx)\, dx = \frac{\pi}{2p} (e^{qr} + 1)$ (VIII, 634).

11) $\int \frac{e^{p \operatorname{Sin} rx} - e^{-p \operatorname{Sin} rx}}{p^2 - 2pq \operatorname{Cos} x + q^2} \operatorname{Sin} x . \operatorname{Sin}(p \operatorname{Cos} rx)\, dx = \frac{\pi}{pq} (\operatorname{Cos} qr - 1)$ (VIII, 634).

F. Exponent.; Circ. Dir. } Forme fractionnaire. TABLE 278, suite. Lim. 0 et π.

12) $\int \frac{e^{p \, Sin\, r x} - e^{-p \, Sin\, r x}}{p^2 - 2pq \, Cos\, x + q^2} \, Sin\, x . Cos(p \, Cos\, r x) \, dx = \frac{\pi}{pq} Sin\, qr$ (VIII, 634).

13) $\int \frac{e^{p \, Sin\, r x} + e^{-p \, Sin\, r x}}{p^2 - 2pq \, Cos\, x + q^2} (p - q \, Cos\, x) \, Sin\,(p \, Cos\, r x) \, dx = \frac{\pi}{q} Sin\, qr$ (VIII, 634).

14) $\int \frac{e^{p \, Sin\, r x} + e^{-p \, Sin\, r x}}{p^2 - 2pq \, Cos\, x + q^2} (p - q \, Cos\, x) \, Cos\,(p \, Cos\, r x) \, dx = \frac{\pi}{p} (Cos\, qr + 1)$ (VIII, 633).

15) $\int e^{q \, Cos\, x} \frac{Sin\, r x}{1 - 2p^r \, Cos\, r x + p^{2r}} \, Sin\,(q \, Sin\, x) \, dx = \frac{\pi}{2pr} \sum_1^\infty \frac{1}{1^{n r/1}} (pq)^{nr}$ (VIII, 635).

16) $\int e^{q \, Cos\, x} \frac{1 - p^r \, Cos\, r x}{1 - 2p^r \, Cos\, r x + p^{2r}} \, Cos\,(q \, Sin\, x) \, dx = \frac{\pi}{2} \left\{ 2 + \sum_1^\infty \frac{1}{1^{n r/1}} (pq)^{nr} \right\}$ (VIII, 635).

17) $\int \frac{Sin\, \frac{1}{2} x - p \, e^{Cos\, x} \, Sin\,(\frac{3}{2} x - Sin\, x)}{1 - 2p \, e^{Cos\, x} \, Cos\,(x - Sin\, x) + p^2 e^{2 Cos\, x}} \, Sin\, \frac{1}{2} x \, dx = \frac{\pi}{2} \sum_1^\infty \frac{n^{n-1}}{1^{n/1}} p^n$ (IV, 396).

F. Exponent.; Circ. Dir. TABLE 279. Lim. $a\pi$ et $b\pi$.

1) $\int_0^{\frac{\pi}{4}} e^{Tg\, x} \frac{Tg\, x}{(Sin\, x + Cos\, x)^2} \, dx = \frac{1}{2} e - 1$ V. T. 80, N. 6.

2) $\int_{-\frac{1}{4}\pi}^{\frac{1}{4}\pi} e^{-q \, Sin\, x . \sqrt{(2 \, Cos\, 2x)}} \, Cos\,\{ q \, Cos\, x . \sqrt{2 \, Cos\, 2x} - x \} \frac{dx}{\sqrt{2 \, Cos\, 2x}} = \pi \, Cos\, q$ (IV, 516*).

3) $\int_{\frac{\pi}{4}}^{\frac{\pi}{2}} e^{Cot\, x} \frac{dx}{(Sin\, x + Cos\, x)^2 \, Tg\, x} = \frac{1}{2} e - 1$ V. T. 80, N. 6.

4) $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} e^{-px} Cos^{2a} x \, dx = \frac{1^{2a/1}}{(p^2+2^2)(p^2+4^2)(\ldots p^2 + 4a^2)} \frac{1}{p} (e^{\frac{1}{2} p\pi} - e^{-\frac{1}{2} p\pi})$ V. T. 279, N. 19.

5) $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} e^{-px} Cos^{2a+1} x \, dx = \frac{1^{2a+1/1}}{(p^2+1^2)(p^2+3^2)\ldots\{p^2+(2a+1)^2\}} (e^{\frac{1}{2} p\pi} + e^{-\frac{1}{2} p\pi})$ V. T. 279, N. 20.

6) $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} e^{(2q+r)xi} \, Cos^r x \, dx = \frac{1}{2^r} Sin\, q\pi \frac{\Gamma(q)\Gamma(r+1)}{\Gamma(q+r+1)}$ (VIII, 420).

7) $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} e^{-(q+1)xi - \frac{1}{2} r e^{-xi} Sec\, x} \, Cos^{q-1} x \, dx = \frac{\pi r^q}{2^{q-1} e^r \Gamma(q+1)}$ (IV, 396*).

8) $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} e^{(2p-q+1)xi + 2r \, Cos\, x . e^{xi}} \, Cos^{q-1} x \, dx = \frac{\pi}{2^{q-1}} \frac{\Gamma(q)}{\Gamma(p)\Gamma(q-p+1)} \sum_0^\infty \frac{q^{n|1}}{p^{n|1}} \frac{r^n}{1^{n|1}}$

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9) $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} e^{px}\left(e^{q\,Cos\,x}+e^{-q\,Cos\,x}\right)dx = 2\left(e^{\frac{1}{2}p\pi}-e^{-\frac{1}{2}p\pi}\right)\sum_0^\infty \frac{q^{2n-2}}{(p^2+2^2)(p^2+4^2)\dots(p^2+4n^2)}$

10) $\int_{-\pi}^{\pi} e^{s\,Cos\,x+(a-1)xi+qe^{xi}}\,Cos(s\,Sin\,x)\,dx = \frac{\pi s^{a-1}}{1^{a-1/1}}\sum_0^\infty \frac{(2q)^n}{1^{n/1}p^{n/1}}$

Sur 8) à 10) voyez Russell, Phil. Trans. 1855.

11) $\int_{-\pi}^{\pi}\frac{(1-e^{-xi})(p+e^{-xi})}{1-qe^{p+Cos\,x}e^{(x-Sin\,x)i}}dx = 2\pi\left\{p+\sum_1^\infty \frac{n^{n-1}}{1^{n/1}}q^n e^{np}\right\}$ (IV, 397).

12) $\int_{-\pi}^{\pi}\frac{e^{-\frac{1}{2}xi}\,Sin\,\frac{1}{2}x}{1-qe^{p+Cos\,x}e^{(x-Sin\,x)i}}dx = \frac{\pi}{i}\quad -p+\left\{\sum_1^\infty \frac{n^{n-1}}{1^{n/1}}q^n e^{np}\right\}$ (IV, 398*).

13) $\int_{-\pi}^{\pi}\frac{e^{q\,Sin\,x}\,Sin\{(2a+1)x\}-Sin\{(2a+1)x-q\,Cos\,x\}}{e^{q\,Sin\,x}-2\,Cos(q\,Cos\,x)+e^{-q\,Sin\,x}}dx = \left(\frac{q}{2\pi}\right)^{2a+1}\sum_1^b n^{2a}$ (IV, 398).

14) $\int_{-\pi}^{\pi}\frac{e^{q\,Sin\,x}\,Sin\left\{x+\frac{aq}{4\pi^2}Sin\,2x\right\}-Sin\left\{x+\frac{aq}{4\pi^2}Sin\,2x-q\,Cos\,x\right\}}{e^{q\,Sin\,x}-2\,Cos(q\,Cos\,x)+e^{-q\,Sin\,x}}e^{\frac{aq}{4\pi^2}Cos\,2x}dx =$

$= \frac{2\pi}{q}\left\{\frac{1}{2}+\sum_1^b e^{n^2a}\right\}$ Dans 13) et 14) on a $b = \mathcal{E}\frac{2\pi}{q}$ (IV, 398).

15) $\int_0^{2\pi} e^{pxi}\,Sin\,qx\,dx = 0\,[p\gtrless q] = \pi i\,[p=q]$ (VIII, 335).

16) $\int_0^{2\pi} e^{pxi}\,Cos\,qx\,dx = 0\,[p\gtrless q] = \pi\,[p=q]$ (VIII, 335).

17) $\int_{-b\pi}^{c\pi} e^{-px}\,Sin^{2a}x\,dx = \frac{1^{2a/1}}{(2^2+p^2)(4^2+p^2)\dots(4a^2+p^2)}\frac{1}{p}\left(e^{bp\pi}-e^{-cp\pi}\right)$ (VIII, 250).

18) $\int_{-b\pi}^{c\pi} e^{-px}\,Sin^{2a+1}x\,dx = \frac{1^{2a+1/1}}{(1^2+p^2)(3^2+p^2)\dots\{(2a+1)^2+p^2\}}\left\{e^{bp\pi}\,Cos\,b\pi-e^{-cp\pi}\,Cos\,c\pi\right\}$

(VIII, 250).

19) $\int_{(\frac{1}{2}-b)\pi}^{(c+\frac{1}{2})\pi} e^{-px}\,Cos^{2a}x\,dx = \frac{1^{2a/1}}{(2^2+p^2)(4^2+p^2)\dots(4a^2+p^2)}\frac{1}{p}\left\{e^{(b-\frac{1}{2})p\pi}-e^{-(c+\frac{1}{2})p\pi}\right\}$ (VIII, 250).

20) $\int_{(\frac{1}{2}-b)\pi}^{(c+\frac{1}{2})\pi} e^{-px}\,Cos^{2a+1}x\,dx = \frac{1^{2a+1/1}}{(1^2+p^2)(3^2+p^2)\dots\{(2a+1)^2+p^2\}}\left\{e^{-(c+\frac{1}{2})p\pi}\,Cos\,c\pi-\right.$

$\left.-e^{(b-\frac{1}{2})p\pi}\,Cos\,b\pi\right\}$ (VIII, 250).

1) $\int_0^1 q^x \, Sin\, p x \, dx = \frac{-pq Cos p + q Sin p . lq + p}{p^2 + (lq)^2}$ (VIII, 248).

2) $\int_0^1 q^x \, Cos\, p x \, dx = \frac{pq Sin p + q Cos p . lq - lq}{p^2 + (lq)^2}$ (VIII, 249).

3) $\int_0^1 \frac{e^{\frac{\pi}{p}\sqrt{(1-x^2)}} - e^{-\frac{\pi}{p}\sqrt{(1-x^2)}}}{e^{\frac{\pi}{p}\sqrt{(1-x^2)}} + e^{-\frac{\pi}{p}\sqrt{(1-x^2)}} + 2\, Cos\left(\frac{\pi}{p} x\right)} dx = \frac{\pi^2}{16p}$ V. T. 275, N. 18.

4) $\int_0^1 \frac{Sin\left\{\frac{\pi}{p}\sqrt{1-x^2}\right\}}{e^{\frac{\pi}{p}x} + e^{-\frac{\pi}{p}x} + 2\, Cos\left\{\frac{\pi}{p}\sqrt{1-x^2}\right\}} dx = \frac{\pi^2}{16p}$ V. T. 275, N. 15.

5) $\int_{\frac{\pi}{2}}^{\infty} e^{-px} Sin^{2a} x \, dx = \frac{1^{2a/1}}{(2^2+p^2)(4^2+p^2)\ldots(4a^2+p^2)} \frac{1}{p} e^{-\frac{1}{2}p\pi} \left\{1 + \frac{p^2}{1.2} + \frac{p^2(2^2+p^2)}{1^{4/1}} + \ldots + \right.$
$\left. + \frac{p^2(2^2+p^2)\ldots\{(2a-2)^2+p^2\}}{1^{2a/1}}\right\}$ (VIII, 252).

6) $\int_{\frac{\pi}{2}}^{\infty} e^{-px} Sin^{2a+1} x \, dx = \frac{1^{2a+1/1}}{(1^2+p^2)(3^2+p^2)\ldots\{(2a+1)^2+p^2\}} p e^{-\frac{1}{2}p\pi} \left\{1 + \frac{1^2+p^2}{1.2.3} + \right.$
$\left. + \frac{(1^2+p^2)(3^2+p^2)}{1^{5/1}} + \ldots + \frac{(1^2+p^2)(3^2+p^2)\ldots\{(2a-1)^2+p^2\}}{1^{2a+1/1}}\right\}$ (VIII, 252).

7) $\int_{\frac{\pi}{2}}^{\infty} e^{-px} Cos^{2a} x \, dx = \frac{1^{2a/1}}{(2^2+p^2)(4^2+p^2)\ldots(4a^2+p^2)} \frac{1}{p} e^{-\frac{1}{2}p\pi}$ (VIII, 249).

8) $\int_{\frac{\pi}{2}}^{\infty} e^{-px} Cos^{2a+1} x \, dx = \frac{-1^{2a+1/1}}{(1^2+p^2)(3^2+p^2)\ldots\{(2a+1)^2+p^2\}} e^{-\frac{1}{2}p\pi}$ (VIII, 250).

9) $\int_{-\frac{\pi}{2}}^{\infty} e^{-px} Cos^{2a} x \, dx = \frac{1^{2a/1}}{(2^2+p^2)(4^2+p^2)\ldots(4a^2+p^2)} \frac{1}{p} e^{\frac{1}{2}p\pi}$ (VIII, 699*).

10) $\int_{-\frac{\pi}{2}}^{\infty} e^{-px} Cos^{2a+1} x \, dx = \frac{1^{2a+1/1}}{(1^2+p^2)(3^2+p^2)\ldots\{(2a+1)^2+p^2\}} e^{\frac{1}{2}p\pi}$ (VIII, 699*).

1) $\int_0^{\infty} e^{-\frac{1}{k}x} Sin\, qx . Sin\, rx \, dx = \frac{1}{2} \frac{k}{1+(q-r)^2 k^2}$ (IV, 375).

2) $\int_0^{\infty} e^{-\frac{1}{k}x} Cos\, qx . Cos\, rx \, dx = \frac{1}{2} \frac{k}{1+(q-r)^2 k^2}$ (IV, 375).

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3) $\int_0^\infty e^{-px} \frac{Sin\{(2k+1)x\}}{Sin\,x}\,dx = \frac{\pi}{2}\,\frac{1+e^{-p\pi}}{1-e^{-p\pi}}$ (IV, 382).

4) $\int_0^\infty e^{-px} \frac{Cos\{(2k+1)x\}}{Sin\,x}\,dx = (-1)^p\,\pi\,\frac{e^{-\frac{1}{2}p\pi}}{1-e^{-p\pi}}$ (IV, 382).

5) $\int_0^\infty e^{-px} \frac{Cos\{(2k+1)x\}}{Sin\,x}\,Sin\,x\,dx = \frac{\pi\,e^{-\frac{1}{2}p\pi}}{1+e^{-p\pi}}$ (IV, 382).

6) $\int_0^{\frac{\pi}{2}} \frac{Sin\,2x\,.\,Sin^{4k+2}x - Sin^2x\,.\,Sin\{(4k+2)x\} + Sin\,4kx}{1-2\,Cos\,2x\,.\,Sin^2x + Sin^4x}\;\frac{dx}{(e^{2\pi\,Cot\,x}-1)\,Sin^{4k+2}x} = \frac{\pi-2}{16}$

Catalan, C. R. 54, 1059.

7) $\int_0^a e^{p\,Cos\,x}\,Sin(p\,Sin\,x)\,\frac{Cos\,kx}{Sin\,x}\,dx = 0\;[0<a<\infty]$ (VIII, 378).

8) $\int_0^a e^{p\,Cos\,x}\,Cos(p\,Sin\,x)\,\frac{Cos\,2kx}{Cos\,x}\,dx = 0\left[0<a<\frac{1}{2}\pi\right], = \infty\left[\frac{1}{2}\pi<a<\infty\right]$ (VIII, 379).

9) $\int_0^a e^{p\,Cos\,x}\,Cos(p\,Sin\,x).Cos\{(4k\pm1)x\}\,\frac{dx}{Cos\,x} = \pm\frac{\pi}{2}\,Cos\,p\left[a=\frac{\pi}{2}\right], = \pm\pi\,Cos\,p\left[\frac{\pi}{2}<a<\frac{3\pi}{2}\right], =$
$= \pm\frac{3\pi}{2}\,Cos\,p\left[a=\frac{3\pi}{2}\right], = \pm\frac{2b-1}{2}\,\pi\,Cos\,p\left[a=\frac{2b-1}{2}\,\pi\right], = \pm b\pi\,Cos\,p\left[a=\frac{2b-1}{2}\,\pi+\right.$
$\left.+c,\;c<\pi\right]$ (VIII, 379).

F. Exponent.; Circ. Inverse. TABLE 282. Limites diverses.

1) $\int_0^\infty e^{-px}\,Arctg\frac{x}{q}\,dx = \frac{1}{p}\left\{Ci(pq).Sin\,pq - Si(pq).Cos\,pq + \frac{\pi}{2}\,Cos\,pq\right\}$ (VIII, 598).

2) $\int_0^\infty e^{-px}\,Arccot\frac{x}{q}\,dx = \frac{1}{p}\left\{\pi\,Sin^2\frac{1}{2}pq - Ci(pq).Sin\,pq + Si(pq).Cos\,pq\right\}$ (VIII, 598).

3) $\int_0^\infty Arctg\frac{x}{p}\;\frac{dx}{e^{2\pi qx}-1} = \frac{1}{2q}\left\{l\,\Gamma(pq+1) - \frac{1}{2}\,l\,2pq\pi + pq(1-l\,pq)\right\}$ V. T. 354, N. 6.

4) $\int_0^\infty Arctg\,x\,\frac{e^{\frac{1}{4}\pi x}-e^{-\frac{1}{4}\pi x}}{(e^{\frac{1}{4}\pi x}+e^{-\frac{1}{4}\pi x})^2}\,dx = \frac{\sqrt{2}}{\pi}\left\{\pi - l\,\frac{\sqrt{2}+1}{\sqrt{2}-1}\right\}$ V. T. 97, N. 3.

5) $\int_0^\infty Arctg\,x\,\frac{e^{\frac{1}{2}\pi x}-e^{-\frac{1}{2}\pi x}}{(e^{\frac{1}{2}\pi x}+e^{-\frac{1}{2}\pi x})^2}\,dx = \frac{1}{\pi}\,l\,2$ V. T. 97, N. 2.

6) $\int_0^\infty Arctg\, x \frac{e^{\pi x} - e^{-\pi x}}{(e^{\pi x} + e^{-\pi x})^2} dx = \frac{4-\pi}{4\pi}$ V. T. 97, N. 1.

7) $\int_0^\infty Arctg \frac{x}{q} \frac{e^{\pi x} - e^{-\pi x}}{(e^{\pi x} + e^{-\pi x})^2} dx = \frac{1}{4\pi} \left\{ Z'\left(\frac{2q+3}{4}\right) - Z'\left(\frac{2q+1}{4}\right) \right\}$ V. T. 97, N. 4.

8) $\int_0^\infty Arctg \frac{x}{q} \frac{e^{px} - e^{-px}}{(e^{px} + e^{-px})^2} dx = \frac{\pi}{p} \sum_1^\infty \frac{(-1)^{n-1}}{2pq + (2n-1)\pi}$ V. T. 97, N. 5.

9) $\int_0^\infty \{e^x Arctg(e^{-x}) - e^{-x} Arctg(e^x)\} \frac{dx}{e^x - e^{-x}} = \frac{1}{4}\pi l 2$ Cauchy, A. M. 17, 84.

10) $\int_{-\infty}^\infty Arctg(e^{-x}) \frac{dx}{(e^{px} + e^{-px})^q} = \frac{\sqrt{\pi^3}}{2^{2q+1} p} \frac{\Gamma(q)}{\Gamma(q+\frac{1}{2})}$ (VIII, 422).

TABLE 283.

F. Exponent.; Autre Fonction. — Lim. 0 et ∞.

1) $\int e^{-2x} li(e^x) dx = 0$ V. T. 283, N. 3.

2) $\int e^{px} li(e^{-x}) dx = \frac{1}{n} l(1-p)$ (VIII, 460).

3) $\int e^{-px} li(e^x) dx = -\frac{1}{p} l(p-1)$ (VIII, 461).

4) $\int e^{-px} li(e^{-x}) dx = -\frac{1}{p} l(1+p)$ $[p \geqq -1]$ (VIII, 460).

5) $\int e^{-px^2} li(e^{-x^2}) dx = -\sqrt{\frac{\pi}{p}} . l\{\sqrt{p} + \sqrt{1+p}\}$ $[p > 0]$ (VIII, 460).

6) $\int e^{px^2} li(e^{-x^2}) dx = -\sqrt{\frac{\pi}{p}} . Arcsin(\sqrt{p})$ $[p < 1]$ (VIII, 460).

TABLE 284.

F. Logar.; Circ. Dir. — Lim. 0 et 1.

1) $\int Sin\, px . lx . dx = \sum_0^\infty (-1)^{n-1} \frac{p^{2n+1}}{(2n+1)^2 1^{2n+1/1}}$ (VIII, 516).

2) $\int Cos\, px . lx . dx = -\frac{1}{p} Si(p)$ (VIII, 516).

3) $\int Sin(q\, lx) dx = -\frac{q}{1+q^2}$ V. T. 261, N. 1.

4) $\int Cos(q\, lx) dx = \frac{1}{1+q^2}$ V. T. 261, N. 2.

5) $\int Sin(q\, lx) \frac{dx}{lx} = Arctg\, q$ V. T. 365, N. 1.

6) $\int Sin(p\,lx).Sin(q\,lx)\frac{dx}{lx}=\frac{1}{4}\,l\,\frac{1+(p-q)^2}{1+(p+q)^2}$ V. T. 284, N. 3.

7) $\int Sin(p\,lx).Cos(q\,lx)\frac{dx}{lx}=\frac{1}{2}Arctg\left(\frac{2p}{1-p^2+q^2}\right)$ V. T. 284, N. 4.

8) $\int Sin^2(p\,lx)\frac{dx}{lx}=-\frac{1}{4}\,l(1+4p^2)$ V. T. 365, N. 4.

9) $\int\{Cos(p\,lx)-Cos(q\,lx)\}\frac{dx}{lx}=\frac{1}{2}\,l\,\frac{1+p^2}{1+q^2}$ V. T. 284, N. 6.

10) $\int Sin(p\,lx).\,l\,l\frac{1}{x}.\,dx=\frac{1}{1+p^2}\left\{Arctg\,p-pA-\frac{1}{2}p\,l(1+p^2)\right\}$ V. T. 467, N. 1.

11) $\int Cos(p\,lx).\,l\,lx.\,dx=-\frac{1}{1+p^2}\left\{\frac{1}{2}\,l(1+p^2)+p\,Arctg\,p+A\right\}$ V. T. 467, N. 2.

12) $\int Sin^2(p\,lx).\,l\,lx.\,dx=\frac{1}{1+4p^2}\left\{2p\,Arctg\,2p+\frac{1}{2}\,l(1+4p^2)-4p^2A\right\}$ V. T. 467, N. 3.

13) $\int Sin(p\,lx).\sqrt{l\frac{1}{x}}.\,dx=-\frac{1}{4}\sqrt{\{-1+3p^2+\sqrt{1+p^2}^{\,3}\}}.\sqrt{\frac{2\pi}{(1+p^2)^3}}$ V. T. 394, N. 1.

14) $\int Cos(p\,lx).\sqrt{l\frac{1}{x}}.\,dx=\frac{1}{4}\sqrt{\{1-3p^2+\sqrt{1+p^2}^{\,3}\}}.\sqrt{\frac{2\pi}{(1+p^2)^3}}$ V. T. 394, N. 4.

15) $\int Sin(p\,lx)\frac{dx}{\sqrt{l\frac{1}{x}}}=-\sqrt{\left\{\frac{\pi}{2}\,\frac{\sqrt{1+p^2}-1}{1+p^2}\right\}}$ V. T. 395, N. 1.

16) $\int Cos(p\,lx)\frac{dx}{\sqrt{l\frac{1}{x}}}=-\sqrt{\left\{\frac{\pi}{2}\,\frac{\sqrt{1+p^2}+1}{1+p^2}\right\}}$ V. T. 395, N. 2.

17) $\int Sin\left(2p\sqrt{l\frac{1}{x}}\right)dx=pe^{-p^2}\sqrt{\pi}$ V. T. 362, N. 1.

18) $\int Cos\left(p\sqrt{l\frac{1}{x}}\right)dx=\frac{1}{4}-\frac{p}{4}\sum_{0}^{\infty}(-1)^n\frac{p^{2n+1}}{(n+1)^{n+1/1}}$ V. T. 362, N. 2.

19) $\int Tg\left(p\sqrt{l\frac{1}{x}}\right)dx=2p\sqrt{\pi}.\sum_{1}^{\infty}(-1)^n n e^{-n^2p^2}$ V. T. 362, N. 15.

20) $\int Cot\left(p\sqrt{l\frac{1}{x}}\right)dx=-2p\sqrt{\pi}.\sum_{1}^{\infty}n e^{-n^2p^2}$ V. T. 362, N. 16.

21) $\int Cosec\left(2p\sqrt{l\frac{1}{x}}\right)dx=-2p\sqrt{\pi}.\sum_{1}^{\infty}(2n-1)e^{-(2n-1)^2p^2}$ V. T. 362, N. 17.

22) $\int Sin\left(p\sqrt{l\frac{1}{x}}\right)\frac{dx}{lx}=\frac{1}{2}p\sqrt{\pi}.\sum_{0}^{\infty}\frac{(-1)^{n-1}}{(2n+1)\,1^{n/1}}\left(\frac{p}{2}\right)^{2n}$ V. T. 365, N. 21.

23) $\int Cos\left(2p\sqrt{l\frac{1}{x}}\right)\frac{dx}{\sqrt{l\frac{1}{x}}} = e^{-p^2}\sqrt{\pi}$ V. T. 395, N. 3.

24) $\int l\,Sin\left(q\,l\frac{1}{x}\right)dx = -\frac{1}{4}l2 - \sum_1^\infty \frac{1}{n}\,\frac{1}{1+4n^2q^2}$ V. T. 467, N. 4.

25) $\int l\,Cos\left(q\,l\frac{1}{x}\right)dx = -\frac{1}{4}l2 - \sum_1^\infty \frac{(-1)^n}{n}\,\frac{1}{1+4n^2q^2}$ V. T. 467, N. 5.

26) $\int l\,Tg\left(q\,l\frac{1}{x}\right)dx = -2\sum_1^\infty \frac{1}{2n-1}\,\frac{1}{1+4(2n-1)^2q^2}$ V. T. 467, N. 6.

F. Log. en num. $(l\,Sin\,ax)^b$; Circ. Dir. entière. | TABLE 285. | Lim. 0 et $\frac{\pi}{4}$.

1) $\int l\,Sin\,x.dx = -\frac{\pi}{4}l2 - \frac{1}{2}\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 204, N. 2.

2) $\int l\,Sin\,x.Cos^a 2x.Sin\,2x.dx = \frac{-1}{4(a+1)}\left\{l2 + \sum_0^a \frac{1}{n+1}\right\}$ V. T. 35, N. 11.

3) $\int l(2\,Sin^2 x).Tg\,2x.dx = -\frac{1}{12}\pi^2$ V. T. 114, N. 14.

4) $\int l\,Sin\,2x.Tg\left(\frac{\pi}{4}+x\right)dx = -\frac{1}{12}\pi^2$ V. T. 294, N. 4.

5) $\int l\,Sin\,2x.Tg\left(\frac{\pi}{4}-x\right)dx = -\frac{1}{24}\pi^2$ V. T. 294, N. 5.

6) $\int l\,Sin\,2x.Tg\left(\frac{\pi}{4}+x\right).Sin\,2x.dx = \frac{6-\pi^2}{12}$ V. T. 108, N. 7.

7) $\int l\,Sin\,2x.Tg^2\left(\frac{\pi}{4}+x\right).Cos\,2x.dx = \frac{3-\pi^2}{6}$ V. T. 108, N. 9.

8) $\int (l\,Sin\,2x)^3.Tg\left(\frac{\pi}{4}+x\right)dx = -\frac{1}{30}\pi^4$ V. T. 109, N. 11.

9) $\int (l\,Sin\,2x)^3.Tg\left(\frac{\pi}{4}-x\right)dx = -\frac{7}{240}\pi^4$ V. T. 109, N. 9.

10) $\int (l\,Sin\,2x)^5.Tg\left(\frac{\pi}{4}+x\right)dx = -\frac{4}{63}\pi^6$ V. T. 109, N. 21.

11) $\int (l\,Sin\,2x)^5.Tg\left(\frac{\pi}{4}-x\right)dx = -\frac{31}{504}\pi^6$ V. T. 109, N. 20.

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12) $\int (l\,Sin\,2\,x)^{2a} . Tg\left(\frac{\pi}{4} - x\right) dx = \frac{1^{2a/1}}{2^{2a+1}} (2^{2a} - 1) \sum_1^\infty \frac{1}{n^{2a+1}}$ V. T. 110, N. 1.

13) $\int (l\,Sin\,2\,x)^{2a-1} . Tg\left(\frac{\pi}{4} + x\right) dx = -\frac{1}{8a} (2\pi)^{2a} B_{2a-1}$ V. T. 110, N. 5.

14) $\int (l\,Sin\,2\,x)^{2a-1} . Tg\left(\frac{\pi}{4} - x\right) dx = \frac{1 - 2^{2a-1}}{4a} \pi^{2a} B_{2a-1}$ V. T. 110, N. 2.

15) $\int (l\,Sin\,2\,x)^{a-1} . Tg\left(\frac{\pi}{4} + x\right) dx = (-1)^{a-1} 1^{a-1/1} \frac{1}{2} \sum_0^\infty \frac{1}{(1+n)^a}$ V. T. 110, N. 6.

16) $\int (l\,Sin\,2\,x)^{a-1} . Tg\left(\frac{\pi}{4} - x\right) dx = (-1)^{a-1} 1^{a-1/1} \frac{1}{2} \sum_0^\infty \frac{(-1)^n}{(1+n)^a}$ V. T. 110, N. 3.

17) $\int (l\,Sin\,2\,x)^{a-1} . Tg\left(\frac{\pi}{4} + x\right) . Sin^q 2\,x . dx = \frac{1}{2} (-1)^{a-1} 1^{a-1/1} \sum_0^\infty \frac{1}{(q+n+1)^a}$ V. T. 110, N. 7.

18) $\int (l\,Sin\,2\,x)^{a-1} . Tg\left(\frac{\pi}{4} - x\right) . Sin^q 2\,x . dx = \frac{1}{2} (-1)^{a-1} 1^{a-1/1} \sum_0^\infty \frac{(-1)^n}{(q+n+1)^a}$ V. T. 110, N. 4.

F. Log. en num. $(l\,Cos\,a\,x)^b$, $(l\,Tang\,a\,x)^b$; Circ. Dir. entière.

TABLE 286.

Lim. 0 et $\frac{\pi}{4}$.

1) $\int l\,Cos\,x . dx = -\frac{1}{4} \pi\, l\,2 + \frac{1}{2} \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 285, N. 1 et T. 286, N. 11.

2) $\int l\,Cos\,x . Cos^{p-1} 2\,x . Tg\,2\,x . dx = \frac{1}{8(1-p)} \left\{ Z'\left(\frac{p+1}{2}\right) - Z'\left(\frac{p}{2}\right) \right\}$ V. T. 34, N. 7.

3) $\int l(2\,Cos^2 x) . Tg\,2\,x . dx = \frac{1}{24} \pi^2$ V. T. 114, N. 1.

4) $\int l\,Cos\,2\,x . Tg\,x . dx = -\frac{1}{24} \pi^2$ V. T. 286, N. 3.

5) $\int (l\,Cos\,2\,x)^3 . Tg\,x . dx = -\frac{7}{240} \pi^4$ V. T. 109, N. 9.

6) $\int (l\,Cos\,2\,x)^5 . Tg\,x . dx = -\frac{31}{504} \pi^6$ V. T. 109, N. 20.

7) $\int (l\,Cos\,2\,x)^{2a-1} . Tg\,x . dx = \frac{1 - 2^{2a-1}}{4a} \pi^{2a} B_{2a-1}$ V. T. 110, N. 2.

8) $\int (l\,Cos\,2\,x)^{2a} . Tg\,x . dx = \frac{2^{2a} - 1}{2^{2a+1}} 1^{2a/1} \sum_1^\infty \frac{1}{n^{2a+1}}$ V. T. 110, N. 1.

9) $\int (l\, Cos\, 2x)^{a-1} . Tg\, x . dx = \frac{1}{2} (-1)^{a-1} 1^{a-1/1} \sum_0^\infty \frac{(-1)^n}{(1+n)^a}$ V. T. 110, N. 3.

10) $\int (l\, Cos\, 2x)^{a-1} . Tg\, x . Cos^q 2x . dx = \frac{1}{2} (-1)^{a-1} 1^{a-1/1} \sum_0^\infty \frac{(-1)^n}{(q+n+1)^a}$ V. T. 110, N. 4.

11) $\int l\, Tg\, x . dx = -\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 206, N. 1.

12) $\int l\, Tg\, x . Tg\, x . dx = -\frac{1}{48} \pi^2$ V. T. 108, N. 1

13) $\int l\, Tg\, x . Sin\, 2x . dx = -\frac{1}{2} l2$ (IV, 433*). 14) $\int l\, Tg\, x . Tg\, 2x . dx = -\frac{1}{16} \pi^2$ V. T. 115, N. 15.

15) $\int l\, Tg\, x . Cos\, 2x . Sin^{2p-1} 2x . dx = -2^{2p-4} \frac{\{\Gamma(p)\}^2}{p\Gamma(2p)}$ V. T. 112, N. 8.

16) $\int (l\, Tg\, x)^2 dx = \frac{1}{16} \pi^3$ V. T. 109, N. 3.

17) $\int (l\, Tg\, x)^3 . Tg\, x . dx = -\frac{7}{1920} \pi^4$ V. T. 109, N. 9.

18) $\int (l\, Tg\, x)^3 . Tg\, 2x . dx = -\frac{1}{128} \pi^4$ V. T. 109, N. 13.

19) $\int (l\, Tg\, x)^4 dx = \frac{5}{64} \pi^5$ V. T. 109, N. 17.

20) $\int (l\, Tg\, x)^6 dx = \frac{61}{256} \pi^7$ V. T. 109, N. 25.

21) $\int (l\, Tg\, x)^{q-1} dx = Cos\, q\pi . \Gamma(q) \sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^q}$ (VIII, 577).

22) $\int (l\, Tg\, x)^{a-1} . Tg\, q x . dx = (-1)^{a-1} 1^{a-1/1} \sum_0^\infty \frac{(-1)^n}{(q+1+2n)^a}$ (VIII, 577).

F. Log. en num.; Circ. Dir. ent. | Autre forme. TABLE 287. Lim. 0 et $\frac{\pi}{4}$.

1) $\int l(1+Tg\, x)\, dx = \frac{\pi}{8} l2$ (VIII, 322).

2) $\int l(1-Tg\, x)\, dx = \frac{\pi}{8} l2 + \sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 114, N. 17.

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3) $\int l(1+Cot\,x)\,dx = \frac{\pi}{8} l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 115, N. 3.

4) $\int l(Cot\,x-1)\,dx = \frac{\pi}{8} l2$ V. T. 115, N. 5.

5) $\int l(Tg\,x+Cot\,x)\,dx = \frac{\pi}{2} l2$ V. T. 115, N. 7.

6) $\int l(Cot\,x-Tg\,x)\,dx = \frac{\pi}{4} l2$ V. T. 115, N. 9.

7) $\int l(\sqrt{Tg\,x}+\sqrt{Cot\,x})\,dx = \frac{\pi}{8} l2 + \frac{1}{2}\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 115, N. 4.

8) $\int l(\sqrt{Cot\,x}-\sqrt{Tg\,x})\,dx = \frac{\pi}{8} l2 + \frac{1}{2}\sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 115, N. 6.

9) $\int l(1-Tg^2 x)\,dx = \frac{\pi}{4} l2 + \sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 114, N. 26.

10) $\int l(Cot^2 x-1)\,dx = \frac{\pi}{4} l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 115, N. 10.

11) $\int l(Cot^2 x-Tg^2 x)\,dx = \frac{3\pi}{4} l2$ V. T. 115, N. 12.

12) $\int l\left(\frac{Cos\,2x}{Cos^2 x}\right) dx = \frac{\pi}{4} l2 + \sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 114, N. 26.

13) $\int l\left(\frac{Cos\,2x}{Sin^2 x}\right) dx = \frac{\pi}{4} l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 115, N. 10.

14) $\int l\left(\frac{Cos\,x+Sin\,x}{Cos\,x-Sin\,x}\right) dx = \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 115, N. 17.

15) $\int l\,Tg\,x.(l\,Cos\,2x)^2 Tg\,2x.dx = -\frac{1}{192}\pi^4$ V. T. 311, N. 6.

16) $\int l\,Tg\,x.(l\,Cos\,2x)^4.Tg\,2x.dx = -\frac{1}{160}\pi^6$ V. T. 311, N. 8.

17) $\int l\,Tg\,x.(l\,Cos\,2x)^6.Tg\,2x.dx = -\frac{17}{896}\pi^8$ V. T. 311, N. 10.

18) $\int l\,Tg\,x.(l\,Cos\,2x)^{2a}.Tg\,2x.dx = -\frac{2^{2a+2}-1}{16(a+1)(2a+1)}\pi^{2a+2} B_{2a+1}$ V. T. 311, N. 11.

19) $\int l\,Tg\,x.(l\,Cos\,2x)^{2a-1}.Tg\,2x.dx = \frac{2^{2a+1}-1}{2^{2a+3}} 1^{2a-1/1} \sum_1^\infty \frac{1}{n^{2a+1}}$ V. T. 311, N. 12.

20) $\int l\,Tg\,x.(l\,Cos\,2x)^{a-1}.Tg\,2x.dx = (-1)^{a-1} \frac{1^{a-1/1}}{4} \sum_0^\infty \frac{1}{(1+2n)^{a+1}}$ V. T. 294, N. 20.

F. Log. en num. $l\,Sin\,ax$, $l\,Cos\,ax$; Circ. Dir. rat. en dén. monôme. TABLE 288. Lim. 0 et $\frac{\pi}{4}$.

1) $\int l\,Sin\,x \frac{Sin^{2a} x}{Cos^{2a+2} x} dx = -\frac{1}{2a+1}\left\{\frac{1}{2} l2 + (-1)^a \frac{\pi}{4} + \sum_0^{a-1} \frac{(-1)^n}{2a-2n-1}\right\}$ V. T. 34, N. 2.

2) $\int l\,Sin\,x \frac{Sin^{2a-1} x}{Cos^{2a+1} x} dx = \frac{1}{4a}\left\{-l2 + (-1)^a l2 + \sum_0^{a-1} \frac{(-1)^n}{a-n}\right\}$ V. T. 34, N. 3.

3) $\int l\,Sin\,x \frac{Sin\,2x}{Cos^{p+1} 2x} dx = \frac{1}{4p}\{A + Z'(1-p)\}$ $[-1<p<0]$ V. T. 34, N. 7.

4) $\int l\,Cos\,x \frac{dx}{Sin\,2x} = -\frac{1}{96}\pi^2$ V. T. 286, N. 12.

5) $\int l\,Cos\,2x \frac{dx}{Tg\,x} = -\frac{1}{12}\pi^2$ V. T. 286, N. 3.

6) $\int l\,Cos\,2x \frac{Sin^2 x}{Tg\,x} dx = -\frac{1}{4}$ V. T. 288, N. 5, 8.

7) $\int l\,Cos\,2x \frac{Cos^2 x}{Tg\,x} dx = \frac{1}{4} - \frac{1}{12}\pi^2$ V. T. 288, N. 5, 8.

8) $\int l\,Cos\,2x \frac{Cos\,2x}{Tg\,x} dx = \frac{1}{12}(6-\pi^2)$ V. T. 108, N. 7.

9) $\int l\,Cos\,2x \frac{Sin\,2x}{Tg^2 x} dx = \frac{1}{6}(3-\pi^2)$ V. T. 108, N. 9.

10) $\int l\,Cos\,x \frac{Sin^{2a} x}{Cos^{2a+2} x} dx = \frac{1}{2a+1}\left\{-\frac{1}{2} l2 + (-1)^{a+1} \frac{\pi}{4} + \sum_0^{a} \frac{(-1)^{n-1}}{2a-2n+1}\right\}$ V. T. 34, N. 2.

11) $\int l\,Cos\,x \frac{Sin^{2a-1} x}{Cos^{2a+1} x} dx = \frac{1}{4a}\left\{-l2 + (-1)^a l2 + \sum_0^{a-1} \frac{(-1)^n}{a-n}\right\}$ V. T. 34, N. 3.

12) $\int l\,Cos\,x \frac{Tg^p x}{Sin\,2x} dx = \frac{1}{4p}\left\{l\frac{1}{2} + 2\sum_0^\infty \frac{(-1)^n}{p+2n+2}\right\}$ V. T. 106, N. 12.

13) $\int l\,Cos\,2x \frac{Cos^{p-1} 2x}{Tg\,x} dx = -\frac{1}{2}\sum_0^\infty \frac{1}{(p+n)^2}$ V. T. 108, N. 8.

F. Log. en num. $l\,Tang\,a\,x$; Circ. Dir. rat. en dén. mon. TABLE 289. Lim. 0 et $\frac{\pi}{4}$.

1) $\int l\,Tg\,x\,\frac{dx}{Cos\,2x}=-\frac{1}{8}\pi^2$ (VIII, 546).

2) $\int l\,Tg\,x\,\frac{dx}{Sin\,4x}=-\infty$ V. T. 112, N. 2.

3) $\int l\,Tg\,x\,\frac{dx}{Tg\,2x}=-\infty$ V. T. 112, N. 1.

4) $\int l\,Tg\,x\,\frac{Tg\,2x}{Cos^2 x}\,dx=-\frac{1}{12}\pi^2$ V. T. 315, N. 11.

5) $\int l\,Tg\,x\,\frac{Tg\,x}{Cos\,2x}\,dx=-\frac{1}{24}\pi^2$ V. T. 108, N. 6.

6) $\int l\,Tg\,x\,\frac{Sin^{2a} x}{Cos^{2a+2} x}\,dx=-\frac{1}{(2a+1)^2}$ V. T. 288, N. 1, 10.

7) $\int l\,Tg\,x\,\frac{Sin^{2a-1} x}{Cos^{2a+1} x}\,dx=-\frac{1}{4a^2}$ V. T. 288, N. 2, 11.

8) $\int l\,Tg\,x\,.\,Sin\,(p\,Cot\,x)\,\frac{dx}{Sin^2 x}=-\infty$ V. T. 35, N. 29.

9) $\int l\,Tg\,x\,.\,Cos\,(p\,Tg\,x)\,\frac{dx}{Cos^2 x}=-\frac{1}{p}\,Si\,(p)$ V. T. 35, N. 28.

10) $\int l\,Tg\,x\,.\,Tg\left(\frac{\pi}{4}+x\right)\frac{dx}{Cos^2 x}=\frac{1}{8}(3-\pi^2)$ V. T. 108, N. 9.

11) $\int l\,Tg\,x\,\frac{Sin^3 x}{Cos\,2x\,.\,Cos\,x}\,dx=-\frac{1}{96}\pi^2$ V. T. 108, N. 6.

12) $\int l\,Tg\,x\,.\left(\frac{Cos\,x-Sin\,x}{Sin\,x}\right)^{p-1}\frac{dx}{Sin^2 x}=-\frac{\pi}{p}\,Cosec\,p\pi\;[-1<p<0]$ V. T. 35, N. 27.

F. Log. en num. $(l\,Sin\,a\,x)^b$, $(l\,Cos\,a\,x)^b$, $(l\,Tg\,a\,x)^b$; Circ. Dir. rat. en dén. monôme. TABLE 290. Lim. 0 et $\frac{\pi}{4}$.

1) $\int (l\,Sin\,2x)^{q-1}\,\frac{Sin^p\,2x}{Tg\left(\frac{\pi}{4}-x\right)}\,dx=-\frac{1}{2}\,Cos\,q\pi\,.\,\Gamma(q)\sum_0^\infty\frac{1}{(p+n+1)^q}$ V. T. 110. N. 7.

2) $\int (l\,Sin\,2x)^{2a-1}\,.\,Tg^2\left(\frac{\pi}{4}+x\right)\frac{dx}{Tg\,2x}=\frac{-1}{2a}\,2^{2a-1}\pi^{2a}B_{2a-1}$ V. T. 118, N. 10.

3) $\int (l\,Cos\,2x)^3\,\frac{dx}{Tg\,x}=-\frac{1}{30}\pi^4$ V. T. 109, N. 11.

4) $\int (l\,Cos\,2x)^5\,\frac{dx}{Tg\,x}=-\frac{4}{63}\pi^6$ V. T. 109, N. 21.

5) $\int (l\,Cos\,2x)^{2a-1}\frac{dx}{Tg\,x} = -\frac{1}{a}2^{2a-3}\pi^{2a}B_{2a-1}$ V. T. 110, N. 5.

6) $\int (l\,Cos\,2x)^{a-1}\frac{dx}{Tg\,x} = \frac{1}{2}(-1)^{a-1}1^{a-1/1}\sum_0^\infty\frac{1}{(n+1)^a}$ V. T. 110, N. 6.

7) $\int (l\,Cos\,2x)^{2a-1}\frac{Tg\,2x}{Tg^2\,x}dx = -\frac{1}{2a}2^{2a-2}\pi^{2a}B_{2a-1}$ V. T. 112, N. 10.

8) $\int (l\,Cos\,2x)^{a-1}\frac{Cos^q\,2x}{Tg\,x}dx = \frac{1}{2}(-1)^{a-1}1^{a-1/1}\sum_0^\infty\frac{1}{(q+n+1)^a}$ V. T. 110, N. 7.

9) $\int (l\,Tg\,x)^3\frac{dx}{Cos\,2x} = -\frac{1}{16}\pi^4$ V. T. 109, N. 13.

10) $\int (l\,Tg\,x)^3\frac{Tg\,x}{Cos\,2x}dx = -\frac{1}{240}\pi^4$ V. T. 109, N. 11.

11) $\int (l\,Tg\,x)^3\frac{Sin\,x\,.\,Cos\,x}{Cos\,2x}dx = -\frac{1}{256}\pi^4$ V. T. 109, N. 13.

12) $\int (l\,Tg\,x)^3\frac{Sin^3\,x}{Cos\,2x\,.\,Cos\,x}dx = -\frac{1}{3840}\pi^4$ V. T. 109, N. 11.

13) $\int (l\,Tg\,x)^5\frac{dx}{Cos\,2x} = -\frac{1}{8}\pi^6$ V. T. 109, N. 22.

14) $\int (l\,Tg\,x)^5\frac{Tg\,x}{Cos\,2x}dx = -\frac{1}{504}\pi^6$ V. T. 109, N. 21.

15) $\int (l\,Tg\,x)^5\frac{Sin\,x\,.\,Cos\,x}{Cos\,2x}dx = -\frac{1}{512}\pi^6$ V. T. 109, N. 22.

16) $\int (l\,Tg\,x)^7\frac{dx}{Cos\,2x} = -\frac{17}{32}\pi^8$ V. T. 109, N. 30.

17) $\int (l\,Tg\,x)^{2a-1}\frac{dx}{Cos\,2x} = \frac{1-2^{2a}}{4a}\pi^{2a}B_{2a-1}$ V. T. 112, N. 9.

18) $\int (l\,Tg\,x)^{2a}\frac{dx}{Cos\,2x} = \frac{2^{2a+2}-1}{2^{2a+1}}1^{2a/1}\sum_1^\infty\frac{1}{n^{2a+1}}$ V. T. 110, N. 12.

19) $\int (l\,Tg\,x)^{2a-1}\frac{Tg\,x}{Cos\,2x}dx = -\frac{1}{4a}\pi^{2a}B_{2a-1}$ V. T. 110, N. 5.

20) $\int (l\,Tg\,x)^a . Tg^p\,x\frac{dx}{Sin\,2x} = \frac{(-1)^a}{2p^{a+1}}1^{a/1}$ V. T. 107, N. 3.

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21) $\int (l\,Tg\,x)^{2a-1}.\,Tg\left(\frac{\pi}{4}+x\right)\frac{dx}{Sin\,2\,x} = -\frac{2^{2a-2}}{a}\pi^{2a}B_{2a-1}$ V. T. 112, N. 10.

22) $\int (l\,Tg\,x)^{2a}\frac{dx}{Cos^2\left(\frac{\pi}{4}+x\right)} = (2\pi)^{2a}B_{2a-1}$ V. T. 290, N. 21.

F. Log. en num. $(l\,Tang\,a\,x)^b$; Circ. Dir. rat. en dén. binôme. TABLE 291. Lim. 0 et $\frac{\pi}{4}$.

1) $\int l\,Tg\,x\frac{dx}{2-Sin\,2\,x} = -\frac{2}{27}\pi^2$ V. T. 113, N. 3.

2) $\int l\,Tg\,x\frac{Cos\,2\,x}{1+p\,Sin\,2\,x}dx = \frac{1}{16p}\{4(Arccos\,p)^2-\pi^2\}$ $[p^2 \leqq 1]$ V. T. 313, N. 1.

3) $\int l\,Tg\,x\frac{Cos\,2\,x}{1-p\,Sin\,2\,x}dx = -\frac{1}{4p}Arcsin\,p.\{\pi+Arcsin\,p\}$ $[p^2<1]$ V. T. 291, N. 2, 9.

4) $\int l\,Tg\,x\frac{Tg\,x}{1-Sin\,x.\,Cos\,x}dx = -\frac{5}{108}\pi^2$ V. T. 113, N. 4.

5) $\int l\,Tg\,x\frac{Cos\,\lambda-Tg\,x}{1-Cos\,\lambda.\,Sin\,2\,x}dx = \frac{1}{2}\pi\lambda-\frac{1}{6}\pi^2-\frac{1}{4}\lambda^2$ V. T. 113, N. 5.

6) $\int l\,Tg\,x\frac{Sin\,2\,x}{4-3\,Sin^2\,2\,x}dx = -\frac{1}{54}\pi^2$ V. T. 112, N. 4.

7) $\int l\,Tg\,x\frac{Cos\,2\,x}{1-Sin^2\lambda.\,Sin^2\,2\,x}dx = -\frac{\pi}{4}\lambda\,Cosec\,\lambda$ V. T. 113, N. 6.

8) $\int l\,Tg\,x\frac{Sin\,4\,x}{1-p^2\,Sin^2\,2\,x}dx = \frac{-1}{2p^2}(Arcsin\,p)^2$ $[p^2<1]$ V. T. 291, N. 2, 9.

9) $\int l\,Tg\,x\frac{Cos\,2\,x}{1-p^2\,Sin^2\,2\,x}dx = -\frac{\pi}{4p}Arcsin\,p$ $[p^2 \leqq 1]$ V. T. 315, N. 4.

10) $\int l\,Tg\,x\frac{Cos\,2\,x}{1+p^2\,Sin^2\,2\,x}dx = -\frac{\pi}{4p}l\{p+\sqrt{1+p^2}\}$ $[p^2<1]$ V. T. 342, N. 1.

11) $\int l\,Tg\,x\frac{Cos\,2\,x}{Cos^2\,2\,x+p^2\,Sin^2\,2\,x}dx = \frac{\pi}{4\sqrt{1-p^2}}Arccos\,p$ $[p^2<1]$ V. T. 315, N. 5.

12) $\int l\,Tg\,x\frac{Cos\,2\,x}{4+(e^p-e^{-p})^2\,Sin^2\,2\,x}dx = -\frac{1}{8}p\frac{\pi}{e^p-e^{-p}}$ (IV, 410).

13) $\int (l\,Tg\,x)^2 \frac{dx}{1+Cos\lambda.Sin 2x} = \frac{1}{6}\lambda(\pi^2-\lambda^2)\,Cosec\lambda$ V. T. 113, N. 7.

14) $\int (l\,Tg\,x)^2 \frac{dx}{Sin^4 x + Cos^4 x} = \frac{3}{64}\pi^3\sqrt{2}$ (VIII, 568).

15) $\int (l\,Tg\,x)^2 \frac{dx}{1-Sin^2 x.Cos^2 x} = \frac{1}{27}\pi^3\sqrt{3}$ V. T. 109, N. 6.

16) $\int (l\,Tg\,x)^2 \frac{Sin 2x}{1-Cos^2\lambda.Sin^2 2x}\,dx = \frac{1}{6}\lambda(\pi-\lambda)(\pi-2\lambda)\,Cosec\lambda$ V. T. 113, N. 7.

17) $\int (l\,Tg\,x)^4 \frac{dx}{1+Cos\lambda.Sin 2x} = \frac{1}{6}\,\frac{\pi^2-\lambda^2}{5}\,\frac{7\pi^2-3\lambda^2}{Sin\lambda}\,\lambda$ V. T. 113, N. 8.

F. Log. en num. $(l\,Tang\,ax)^b$; Circ. Dir. rat. en dén. composé. TABLE 292. Lim. 0 et $\frac{\pi}{4}$.

1) $\int l\,Tg\,x \frac{dx}{Cos x.(Sin x + Cos x)} = -\frac{1}{12}\pi^2$ V. T. 294, N. 6.

2) $\int l\,Tg\,x \frac{dx}{Cos x.(Cos x - Sin x)} = -\frac{1}{6}\pi^2$ V. T. 294, N. 7.

3) $\int l\,Tg\,x \frac{Tg^p x}{Cos x - Sin x}\,\frac{dx}{Sin 2x} = -\frac{1}{2}\sum_0^\infty \frac{1}{(p+n)^2}$ V. T. 108, N. 8.

4) $\int l\,Tg\,x \frac{Sin^q 2x}{Cos^{2q} x - Sin^{2q} x}\,\frac{dx}{Sin 2x} = -2^{q-3}\left(\frac{\pi}{q}\right)^2$ V. T. 108, N. 12.

5) $\int l\,Tg\,x \frac{Sin^2 2x}{Sin^4 x + Cos^4 x}\,\frac{dx}{Cos 2x} = -\frac{\pi^2}{4(2+\sqrt{2})}$ V. T. 112, N. 21.

6) $\int l\,Tg\,x \frac{Cos 2x}{Tg^p x + Cot^p x}\,\frac{dx}{Sin^2 2x} = -\frac{\pi^2}{16p^2}\,Sin\frac{\pi}{2p}.Sec^2\frac{\pi}{2p}$ V. T. 108, N. 13.

7) $\int l\,Tg\,x \frac{dx}{(Tg^p x - Cot^p x)\,Sin^2 2x} = \frac{\pi^2}{16p^2}\,Sec^2\frac{\pi}{2p}$ V. T. 108, N. 14.

8) $\int l\,Tg\,x \frac{Tg^q x - Cot^q x}{Tg^p x + Cot^p x}\,\frac{dx}{Sin 2x} = \frac{\pi^2}{8p^2}\,Sin\frac{q\pi}{2p}.Sec^2\frac{q\pi}{2p}$ V. T. 112, N. 3.

9) $\int l\,Tg\,x \frac{Tg^q x + Cot^q x}{Tg^p x - Cot^p x}\,\frac{dx}{Sin 2x} = \frac{\pi^2}{8p^2}\,Sec^2\frac{q\pi}{2p}$ V. T. 112, N. 4.

10) $\int l\,Tg\,x \frac{dx}{(Sin x + Cos x)^2} = -l2$ V. T. 111, N. 1.

11) $\int l\,Tg\,x \frac{Sin^{p-1}x}{(Cos\,x - Sin\,x)^{p+1}} dx = -\frac{\pi}{p} Cosec\,p\pi\ [p<1]$ V. T. 37, N. 20.

12) $\int l\,Tg\,x \frac{Sin^{p-1}2x . Cos\,2x}{(1+Sin\,2x)^{p+1}} dx = -\frac{1}{p\,2^{p+1}} \frac{\Gamma(p)}{\Gamma(p+\frac{1}{2})} \sqrt{\pi}\ [p \leqq 1]$ V. T. 37, N. 1.

13) $\int l\,Tg\,x \frac{Tg^p x - Cot^p x}{(Tg^p x + Cot^p x)^2} \frac{dx}{Sin\,2x} = \frac{\pi}{8p^2}$ V. T. 37, N. 12.

14) $\int l\,Tg\,x \frac{dx}{(Tg\,x + Cot\,x)^{2p+1}\,Tg\,2x . Sin\,2x} = -\frac{\{\Gamma(p)\}^2}{32p\,\Gamma(2p)}$ V. T. 37, N. 19.

15) $\int (l\,Tg\,x)^2 \frac{Tg^q x + Cot^q x}{Tg^p x + Cot^p x} \frac{dx}{Sin\,2x} = \frac{\pi^3}{16p^3} \left\{ 2\,Sec^3 \frac{q\pi}{2p} - Sec \frac{q\pi}{2p} \right\}$ V. T. 109, N. 7.

16) $\int (l\,Tg\,x)^2 \frac{Tg^q x - Cot^q x}{Tg^p x - Cot^p x} \frac{dx}{Sin\,2x} = \frac{\pi^3}{8p^3} Sin \frac{q\pi}{2p} . Sec^3 \frac{q\pi}{2p}$ V. T. 109, N. 8.

17) $\int (l\,Tg\,x)^2 \frac{Tg^q x + Cot^q x}{(Tg^q x - Cot^q a)^2} \frac{dx}{Sin\,2x} = \frac{\pi^2}{8q^3}$ V. T. 292, N. 4.

18) $\int (l\,Tg\,x)^3 \frac{dx}{Cos\,x . (Cos\,x + Sin\,x)} = -\frac{7}{120}\pi^4$ V. T. 109, N. 9.

19) $\int (l\,Tg\,x)^3 \frac{dx}{Cos\,x . (Cos\,x - Sin\,x)} = -\frac{1}{15}\pi^4$ V. T. 109, N. 11.

20) $\int (l\,Tg\,x)^5 \frac{dx}{Cos\,x . (Cos\,x + Sin\,x)} = -\frac{31}{252}\pi^6$ V. T. 109, N. 20.

21) $\int (l\,Tg\,x)^5 \frac{dx}{Cos\,x . (Cos\,x - Sin\,x)} = -\frac{8}{63}\pi^6$ V. T. 109, N. 21.

22) $\int (l\,Tg\,x)^7 \frac{dx}{Cos\,x . (Cos\,x + Sin\,x)} = -\frac{127}{240}\pi^8$ V. T. 109, N. 28.

23) $\int (l\,Tg\,x)^7 \frac{dx}{Cos\,x . (Cos\,x - Sin\,x)} = -\frac{8}{15}\pi^8$ V. T. 109, N. 29.

24) $\int (l\,Tg\,x)^{2a} \frac{dx}{Cos\,x . (Cos\,x + Sin\,x)} = \frac{2^{2a}-1}{2^{2a}} 1^{2a/1} \sum_1^\infty \frac{1}{n^{2a+1}}$ V. T. 110, N. 1.

25) $\int (l\,Tg\,x)^{2a-1} \frac{dx}{Cos\,x . (Cos\,x + Sin\,x)} = \frac{1-2^{2a-1}}{2a} \pi^{2a} B_{2a-1}$ V. T. 110, N. 2.

26) $\int (l\,Tg\,x)^{2a-1} \frac{dx}{Cos\,x . (Cos\,x - Sin\,x)} = -\frac{1}{a} 2^{2a-3} \pi^{2a} B_{2a-1}$ V. T. 110, N. 5.

27) $\int (l\,Tg\,x)^{a-1} \frac{Tg^q\,x}{Cos\,x + Sin\,x} \frac{dx}{Cos\,x} = (-1)^{a-1}\,1^{a-1/1} \sum_0^\infty \frac{(-1)^{n-1}}{(q+n+1)^a}$ V. T. 110, N. 4.

28) $\int (l\,Tg\,x)^{a-1} \frac{Tg^q\,x}{Cos\,x - Sin\,x} \frac{dx}{Cos\,x} = (-1)^{a-1}\,1^{a-1/1} \sum_0^\infty \frac{1}{(q+n+1)^a}$ V. T. 110, N. 7.

29) $\int (l\,Tg\,x)^{p-1} \frac{Cos\,\lambda - Tg\,x}{1 - Cos\,\lambda\,.\,Sin\,2\,x} \frac{Tg^q\,x}{Sin\,2\,x} dx = \frac{1}{2} Cos\,p\pi\,.\,\Gamma(p) \sum_0^\infty \frac{Cos\,n\,\lambda}{(q+n-1)^p}$ V. T. 113, N. 11.

F. Log. en num. $l\,Tg\left(\frac{\pi}{4} \pm x\right)$;
Circ. Dir. rat. en dén.

TABLE 293.

Lim. 0 et $\frac{\pi}{4}$.

1) $\int l\,Tg\left(\frac{\pi}{4} \pm x\right) \frac{dx}{Sin\,2\,x} = \pm \frac{1}{8}\pi^2$ V. T. 289, N. 1.

2) $\int l\,Tg\left(\frac{\pi}{4} \pm x\right) \frac{dx}{Tg\,2\,x} - \pm \frac{1}{16}\pi^2$ V. T. 310, N. 1.

3) $\int l\,Tg\left(\frac{\pi}{4} \pm x\right) \frac{Tg^{p-1}\,x + Cot^{p-1}\,x}{Sin\,2\,x} dx = \mp \frac{\pi}{2(p-1)} Cot \frac{1}{2} p\pi\ [p<1]$ V. T. 35, N. 10.

4) $\int l\,Tg\left(\frac{\pi}{4} \pm x\right) \frac{Sin\,2\,x}{1 + p\,Cos\,2\,x} dx = \pm \frac{1}{16p} \{\pi^2 - 4(Arccos\,p)^2\}\ [p^2 \leqq 1]$ V. T. 313, N. 8.

5) $\int l\,Tg\left(\frac{\pi}{4} \pm x\right) \frac{Sin\,2\,x}{1 - p\,Cos\,2\,x} dx = \pm \frac{1}{4p} Arcsin\,p\,.(\pi + Arcsin\,p)\ [p^2 \leqq 1]$ V. T. 293, N. 4, 6.

6) $\int l\,Tg\left(\frac{\pi}{4} \pm x\right) \frac{Sin\,2\,x}{1 - p^2\,Cos^2\,2\,x} dx = \pm \frac{\pi}{4p} Arcsin\,p\ [p^2 \leqq 1]$ V. T. 315, N. 12.

7) $\int l\,Tg\left(\frac{\pi}{4} \pm x\right) \frac{Sin\,4\,x}{1 - p^2\,Cos^2\,2\,x} dx = \pm \frac{1}{2p^2} (Arcsin\,p)^2\ [p^2 < 1]$ V. T. 293, N. 4, 6.

8) $\int l\,Tg\left(\frac{\pi}{4} \pm x\right) \frac{Sin\,2\,x}{1 + p^2\,Cos^2\,2\,x} dx = \pm \frac{\pi}{4p} l\{p + \sqrt{1+p^2}\}\ [p^2 < 1]$ V. T. 342, N. 2.

9) $\int l\,Tg\left(\frac{\pi}{4} \pm x\right) \frac{Sin\,2\,x}{1 - p^4\,Cos^4\,2\,x} dx = \pm \frac{\pi}{8p} \left\{ l\{p + \sqrt{1+p^2}\} + Arcsin\,p \right\}\ [p^2 < 1]$
V. T. 293, N. 6, 8.

10) $\int l\,Tg\left(\frac{\pi}{4} \pm x\right) \frac{Sin\,4\,x\,.\,Cos\,2\,x}{1 - p^4\,Cos^4\,2\,x} dx = \pm \frac{\pi}{4p^2} \left\{ Arcsin\,p - l\{p + \sqrt{1+p^2}\} \right\}\ [p^2 < 1]$
V. T. 293, N. 6, 8.

1) $\int l\,Cos\,x \frac{dx}{(Cos\,x+p\,Sin\,x)^2}=\frac{1}{1+p^2}\left\{-\frac{\pi}{4}+\frac{1}{p}\,l(1+p)-\frac{1-p}{1+p}\,\frac{1}{2}\,l2\right\}$ $[p<1]$ (IV, 410).

2) $\int l\,Cos\,x \frac{Cos\,2x}{(1+p\,Sin\,2x)^2}\,dx=-\frac{1}{4p}\,l(1+p)-\frac{1}{4(1+p)}\,l2+\frac{1}{4\sqrt{1-p^2}}\,Arctg\left(\sqrt{\frac{1-p}{1+p}}\right)$

$[p^2<1]$ V. T. 36, N. 2.

3) $\int l\,Cos\,x \frac{Cos\,2x}{(1-Cos\,\lambda\,.\,Sin\,2x)^2}\,dx=\frac{\pi-\lambda}{4\,Sin\,\lambda}+\frac{1}{2\,Cos\,\lambda}\,l\,Sin\,\frac{1}{2}\lambda-\frac{1}{4}\,\frac{1+Cos\,\lambda}{1-Cos\,\lambda}\,Sec\,\lambda\,.\,l2$

V. T. 36, N. 1.

4) $\int l\left\{2\,Sin^2\left(\frac{\pi}{4}+x\right)\right\}\frac{dx}{Tg\,2x}=\frac{1}{24}\pi^2$ V. T. 114, N. 1.

5) $\int l\left\{2\,Sin^2\left(\frac{\pi}{4}-x\right)\right\}\frac{dx}{Tg\,2x}=-\frac{1}{12}\pi^2$ V. T. 114, N. 14.

6) $\int l(1+Tg\,x)\frac{dx}{Sin\,2x}=\frac{1}{24}\pi^2$ V. T. 114, N. 1.

7) $\int l(1-Tg\,x)\frac{dx}{Sin\,2x}=-\frac{1}{12}\pi^2$ V. T. 114, N. 14.

8) $\int l\left(\frac{1}{2}\,Sin\,2x\right)\frac{Sin^{2a}x}{Cos^{2a+2}x}\,dx=\frac{1}{2a+1}\left\{(-1)^{a+1}\frac{\pi}{2}-l2+\frac{1}{2a+1}+2\sum_0^{a-1}\frac{(-1)^{n-1}}{2a-2n-1}\right\}$

V. T. 288, N. 1, 10.

9) $\int l(Sin\,x\,.\,Cos\,x)\frac{Sin^{2a-1}x}{Cos^{2a+1}x}\,dx=\frac{1}{2a}\left\{(-1)^a\,l2-l2+\frac{1}{2a}+(-1)^a\sum_1^{a-1}\frac{(-1)^n}{n}\right\}$

V. T. 288, N. 2, 11.

10) $\int l\left(\frac{Cos\,2x}{Cos^2x}\right)\frac{dx}{Sin\,2x}=-\frac{1}{24}\pi^2$ V. T. 114, N. 31.

11) $\int l\left(\frac{1-Cos\,2\lambda\,.\,Sin\,2x}{Cos^2x}\right)\frac{dx}{Sin\,2x}=\frac{1}{2}\pi\lambda-\frac{1}{6}\pi^2-\frac{1}{4}\lambda^2$ V. T. 114, N. 34.

12) $\int l(1+Tg\,x)\frac{dx}{(q^2\,Cos^2x+Sin^2x)(Cos^2x+q^2Sin^2x)}=\frac{\pi}{4q(1+q^2)}\left\{l(1+q^2)-2\,Arctg\,q\,.\,l\,q\right\}$

(VIII, 545).

13) $\int l\,Cos\,x\,.(l\,Tg\,x)^2\frac{dx}{Sin\,2x}=-\frac{7}{11520}\pi^4$ V. T. 286, N. 17.

14) $\int l\,Cos\,2x\,.(l\,Tg\,x)^2\frac{dx}{Sin\,2x}=-\frac{1}{384}\pi^4$ V. T. 286, N. 18.

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15) $\int l\,Tg\left(\frac{\pi}{4}\pm x\right).(l\,Sin\,2x)^2\,\frac{dx}{Tg\,2x}=\pm\frac{1}{96}\pi^4$ V. T. 310, N. 5.

16) $\int l\,Tg\left(\frac{\pi}{4}\pm x\right).(l\,Sin\,2x)^4\,\frac{dx}{Tg\,2x}=\pm\frac{1}{80}\pi^6$ V. T. 310, N. 6.

17) $\int l\,Tg\left(\frac{\pi}{4}\pm x\right).(l\,Sin\,2x)^6\,\frac{dx}{Tg\,2x}=\pm\frac{17}{448}\pi^8$ V. T. 310, N. 7.

18) $\int l\,Tg\left(\frac{\pi}{4}\pm x\right).(l\,Sin\,2x)^{2a}\,\frac{dx}{Tg\,2x}=\pm\frac{2^{2a+2}-1}{8(a+1)(2a+1)}\pi^{2a+2}\,B_{2a+1}$ V. T. 310, N. 9.

19) $\int l\,Tg\left(\frac{\pi}{4}\pm x\right).(l\,Sin\,2x)^{2a-1}\,\frac{dx}{Tg\,2x}=\pm\frac{1-2^{2a+1}}{a.2^{2a+2}}1^{2a/1}\sum_1^\infty\frac{1}{n^{2a+1}}$ V. T. 310, N. 8.

20) $\int l\,Tg\left(\frac{\pi}{4}\pm x\right).(l\,Sin\,2x)^{a-1}\,\frac{dx}{Tg\,2x}=\pm\frac{1}{4a}(-1)^a\,1^{a/1}\sum_0^\infty\frac{1}{(2n+1)^{a+1}}$ V. T. 310, N. 10.

21) $\int l\,Tg\left(\frac{\pi}{4}\pm x\right).(l\,Tg\,x)^2\,\frac{dx}{Sin\,2x}=\pm\frac{1}{48}\pi^4$ V. T. 290, N. 9.

22) $\int l\,Tg\left(\frac{\pi}{4}\pm x\right).(l\,Tg\,x)^4\,\frac{dx}{Sin\,2x}=\pm\frac{1}{40}\pi^6$ V. T. 290, N. 13.

23) $\int l\,Tg\left(\frac{\pi}{4}\pm x\right).(l\,Tg\,x)^6\,\frac{dx}{Sin\,2x}=\pm\frac{17}{224}\pi^8$ V. T. 290, N. 16.

24) $\int l\,Tg\left(\frac{\pi}{4}\pm x\right).(l\,Tg\,x)^{2a}\,\frac{dx}{Sin\,2x}=\pm\frac{2^{2a+2}-1}{4(a+1)(2a+1)}\pi^{2a+2}\,B_{2a+1}$ V. T. 290, N. 17.

25) $\int l\,Tg\left(\frac{\pi}{4}\pm x\right).(l\,Tg\,x)^{2a-1}\,\frac{dx}{Sin\,2x}=\pm\frac{1-2^{2a+1}}{2^{2a+2}a}1^{2a/1}\sum_1^\infty\frac{1}{n^{2a+1}}$ V. T. 290, N. 18.

F. Log. en num., Log. de Log.; Circ. Dir. rat. dén. TABLE 295. Lim. 0 et $\frac{\pi}{4}$.

1) $\int l\,l\,Cot\,x\,\frac{Tg^q\,x}{Sin\,2x}\,dx=-\frac{1}{2q}(A+l\,q)$ V. T. 147, N. 1.

2) $\int l\,l\,Cot\,x\,\frac{dx}{2-Sin\,2x}=\frac{\pi}{\sqrt{3}}\left\{\frac{5}{6}l\,2\pi-l\,\Gamma\left(\frac{1}{6}\right)\right\}$ V. T. 148, N. 5.

3) $\int l\,l\,Cot\,x\,\frac{dx}{1+Cos\,\lambda.Sin\,2x}=\frac{\pi}{2}\,Cosec\,\lambda.\,l\,\frac{(2\pi)^{\frac{\lambda}{\pi}}\Gamma\left(\frac{\pi+\lambda}{2\pi}\right)}{\Gamma\left(\frac{\pi-\lambda}{2\pi}\right)}$ V. T. 147, N. 9.

4) $\int l\,l\,Cot\,x \frac{dx}{(Sin\,x + Cos\,x)^2} = \frac{1}{2} Z'\left(\frac{1}{2}\right) + \frac{1}{2} l\,2\pi$ V. T. 147, N. 7.

5) $\int l\,l\,Cot\,x \frac{Tg^a\,x + Cot^a\,x}{Tg^b\,x + Cot^b\,x} \frac{dx}{Sin\,2x} = \frac{\pi}{4b} Sec \frac{a\pi}{2b} . l\,2\pi + \frac{\pi}{2b} \sum_1^b (-1)^{n-1} Cos\left(\frac{n-\frac{1}{2}}{b} a\pi\right).$
$l \frac{\Gamma\left(\frac{b+n-\frac{1}{2}}{2b}\right)}{\Gamma\left(\frac{n-\frac{1}{2}}{2b}\right)} \left[\begin{matrix} a+b \\ \text{impair} \end{matrix}\right], = \frac{\pi}{4b} Sec \frac{a\pi}{2b} . l\pi + \frac{\pi}{2b} \sum_1^{\frac{1}{2}(b-1)} (-1)^{n-1} Cos\left(\frac{n-\frac{1}{2}}{b} a\pi\right).$
$l \frac{\Gamma\left(\frac{b-n+\frac{1}{2}}{b}\right)}{\Gamma\left(\frac{n-\frac{1}{2}}{b}\right)} \left[\begin{matrix} a+b \\ \text{pair} \end{matrix}\right]$ V. T. 148, N. 6.

6) $\int l(p + l\,Tg\,x) \frac{Tg^q\,x}{Sin\,2x} dx = \frac{1}{2q} \{l\,p - e^{-pq} Ei(pq)\}$ V. T. 302, N. 6.

7) $\int l(p - l\,Tg\,x) \frac{Tg^q\,x}{Sin\,2x} dx = \frac{1}{2q} \{l\,p + e^{pq} Ei(-pq)\}$ V. T. 302, N. 7.

8) $\int l\{q^2 + (l\,Tg\,x)^2\} dx = \pi\, l \frac{2\Gamma\left(\frac{2q+3\pi}{4\pi}\right)}{\Gamma\left(\frac{2q+\pi}{4\pi}\right)} + \frac{\pi}{2} l \frac{\pi}{2}$ V. T. 147, N. 10.

9) $\int l\,l\,Cot\,x . (Tg^p\,x + Cot^p\,x) dx = \frac{\pi}{2}(l\pi - A) Sec \frac{p\pi}{2} - \sum_0^\infty (-1)^n \left\{\frac{l\{(2n+1)\pi - p\pi\}}{2n+1-p} + \right.$
$\left. + \frac{l\{(2n+1)\pi + p\pi\}}{2n+1+p}\right\}$ V. T. 147, N. 5.

10) $\int l\,l\,Cot\,x \frac{Tg^p\,x - Cot^p\,x}{Cos\,2x} dx = \frac{\pi}{2}(A - l\pi) Tg \frac{1}{2} p\pi + \sum_0^\infty \left\{\frac{l\{(2n+1)\pi - p\pi\}}{2n+1-p} - \frac{l\{(2n+1)\pi + p\pi\}}{2n+1+p}\right\}$
V. T. 147, N. 6.

11) $\int l\,l\,Cot\,x . (l\,Cot\,x)^{p-1} \frac{Tg^p\,x}{Sin\,2x} dx = \frac{\Gamma(p)}{2q^p} \{Z'(p) - l\,q\}$ V. T. 147, N. 2.

F. Log. en num. $(l\,Tang\,a\,x)^b$; Circ. Dir. irrat. en dén. TABLE 296. Lim. 0 et $\frac{\pi}{4}$.

1) $\int l\,Tg\,x \frac{\sqrt{Cos\,2x}}{Cos^3\,x} dx = -\frac{\pi}{4}\left(\frac{1}{2} + l\,2\right)$ V. T. 117, N. 1.

2) $\int l\,Tg\,x \frac{Sin\,x . \sqrt{Cos\,2x}}{Cos^4\,x} dx = \frac{1}{3}\left(l\,2 - \frac{4}{3}\right)$ V. T. 117, N, 2.

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3) $\int l\,Tg\,x \frac{(Cos\,2\,x)^{a-\frac{1}{2}}}{Cos^{2a+1}\,x}\,dx = -\frac{1^{a/2}\,\pi}{2^{a+2}\,1^{a/1}}\{A + Z'(a+1) + 2\,l\,2\}$ V. T. 117, N. 3.

4) $\int l\,Tg\,x \frac{Tg\,x}{\sqrt{Cos\,2\,x}}\,dx = -\frac{\pi}{8}\,l\,2$ V. T. 118, N. 3.

5) $\int l\,Tg\,x \frac{Tg^3\,x}{\sqrt{Cos\,2\,x}}\,dx = \frac{1}{4}(l\,2 - 1)$ V. T. 118, N. 4.

6) $\int l\,Tg\,x \frac{dx}{Cos\,x.\sqrt{Cos\,2\,x}} = -\frac{\pi}{2}\,l\,2$ V. T. 118, N. 3.

7) $\int l\,Tg\,x \frac{Sin\,x}{Cos^2\,x.\sqrt{Cos\,2\,x}}\,dx = l\,2 - 1$ V. T. 118, N. 4.

8) $\int l\,Tg\,x \frac{Sin^{2a-1}\,x}{Cos^{2a}\,x.\sqrt{Cos\,2\,x}}\,dx = \frac{2^{a-1/2}}{1^{a/2}}\left\{l\,2 + \sum_1^{2a-1}\frac{(-1)^n}{n}\right\}$ V. T. 118, N. 6.

9) $\int l\,Tg\,x \frac{Sin^{2a}\,x}{Cos^{2a+1}\,x.\sqrt{Cos\,2\,x}}\,dx = \frac{3^{a-1/2}}{2^{a/2}}\,\frac{\pi}{2}\left\{-l\,2 + \sum_1^{2a}\frac{(-1)^{n-1}}{n}\right\}$ V. T. 118, N. 5.

10) $\int l\,Tg\,x \frac{dx}{Cos\,x.\sqrt[3]{Cos^3\,x - Sin^3\,x}} = -\frac{1}{27}\pi^2 - \frac{\pi}{3\sqrt{3}}\,l\,3$ V. T. 118, N. 7.

11) $\int l\,Tg\,x \frac{Sin\,x}{Cos\,x.\sqrt[3]{Cos^3\,x - Sin^3\,x}^2}\,dx = \frac{1}{27}\pi^2 - \frac{\pi}{3\sqrt{3}}\,l\,3$ V. T. 118, N. 8.

12) $\int l\,Tg\,x \frac{(Cot\,x - 1)^{p-\frac{1}{2}}}{Sin^2\,x}\,dx = -\frac{2\,\pi}{2p+1}\,Sec\,p\,\pi\left[p<\frac{1}{2}\right]$ V. T. 39, N. 16.

13) $\int l\,Tg\,x \frac{1}{(Cot\,x - 1)^{p+\frac{1}{2}}}\,\frac{dx}{Sin^2\,x} = \frac{2}{2p-1}\,\pi\,Sec\,p\,\pi\left[p<\frac{1}{2}\right]$ V. T. 38, N. 12.

14) $\int l\,Tg\,x \frac{dx}{\sqrt{Cos\,x.(Cos\,x - Sin\,x)^3}} = -4\,l\,2$ V. T. 39, N. 7.

15) $\int (l\,Tg\,x)^2 \frac{dx}{Cos\,x.\sqrt{Cos\,2\,x}} = \frac{\pi}{2}\left\{(l\,2)^2 + \frac{1}{12}\pi^2\right\}$ V. T. 118, N. 13.

16) $\int (l\,Tg\,x)^{2a-1}\,\frac{1}{Cos\,x - Sin\,x}\,\frac{dx}{\sqrt{Sin\,2\,x}} = \frac{1-2^{2a}}{4\,a\sqrt{2}}(2\,\pi)^{2a}\,B_{2a-1}$ V. T. 112, N. 9.

17) $\int (l\,Tg\,x)^{2a}\,\frac{Sin\,x + Cos\,x}{(Sin\,x - Cos\,x)^2}\,\frac{dx}{\sqrt{Sin\,2\,x}} = \frac{2^{2a}-1}{\sqrt{2}}(2\,\pi)^{2a}\,B_{2a-1}$ V. T. 296, N. 16.

F. Log. en num. d'autre forme; Circ. Dir. irrat. en dén.	TABLE 297.	Lim. 0 et $\frac{\pi}{4}$.

1) $\int (l\,Sin\,2x)^{2a-1} . Tg\left(\frac{\pi}{4}+x\right) \frac{dx}{\sqrt{Sin\,2x}} = \frac{1-2^{2a}}{8a}(2\pi)^{2a} B_{2a-1}$ V. T. 112, N. 9.

2) $\int l\,Cos\,x \frac{1+Cos^2 2x}{Sin^2 2x} \frac{dx}{\sqrt{Cos 2x}} = \frac{1}{\sqrt{2}}\left\{E'\left(Sin\frac{\pi}{4}\right) - F'\left(Sin\frac{\pi}{4}\right)\right\}$ V. T. 38, N. 1.

3) $\int l\,Cos\,x \frac{Sin^4 x + Cos^4 x}{Sin^2 2x . \sqrt{Cos\,2x}} dx = \frac{1}{2\sqrt{2}}\left\{E'\left(Sin\frac{\pi}{4}\right) - F'\left(Sin\frac{\pi}{4}\right)\right\}$ V. T. 120, N. 5.

4) $\int (l\,Cos\,2x)^{2a-1} \frac{dx}{Tg\,x . \sqrt{Cos\,2x}} = \frac{1-2^{2a}}{8a}(2\pi)^{2a} B_{2a-1}$ V. T. 112, N. 9.

5) $\int (l\,Cot\,x)^{a-\frac{1}{2}} \frac{Tg^p\,x}{Sin\,2x} dx = \frac{1^{a/2}}{(2p)^{a+1}} \sqrt{p\pi}$ V. T. 107, N. 2.

6) $\int l\,Tg\left(\frac{\pi}{4} \pm x\right) \frac{Sin\,x}{Cos^2 x} \frac{dx}{\sqrt{Cos\,2x}} = \pm\pi$ V. T. 38, N. 15.

7) $\int l\,Tg\left(\frac{\pi}{4} \pm x\right) \frac{1-2\,Tg^2 x}{Cos\,x . \sqrt{Cos\,2x}} dx = \mp 2$ V. T. 38, N. 16.

8) $\int l\,Tg\left(\frac{\pi}{4} \pm x\right) \frac{Sin\,x}{Cos^2 x + p^2 Cos\,2x} \frac{dx}{\sqrt{Cos\,2x}} = \pm\frac{\pi}{p} l\{p+\sqrt{1+p^2}\}$ V. T. 348, N. 2.

9) $\int dx \sqrt{l\,Cot\,x} = \frac{1}{2}\sqrt{\pi} . \sum_0^\infty \frac{(-1)^n}{\sqrt{(2n+1)^3}}$ V. T. 115, N. 33.

10) $\int l\left(\frac{Cos\,2x}{Cos^2 x}\right) \frac{dx}{Cos\,x . \sqrt{Cos\,2x}} = -\pi\,l2$ V. T. 120, N. 10.

11) $\int l\left(\frac{Cos\,x + p\sqrt{Cos\,2x}}{Cos\,x + p\sqrt{Cos\,2x}}\right) \frac{dx}{Cos\,2x} = \pi\,Arcsin\,p\ [p \leqq 1]$ V. T. 115, N. 29.

F. Log. en dén. Fonction monôme; Circ. Dir. ent.	TABLE 298.	Lim. 0 et $\frac{\pi}{4}$.

1) $\int Sin^2\left(\frac{\pi}{4}-x\right) . Tg\left(\frac{\pi}{4}-x\right) \frac{dx}{l\,Sin\,2x} = \frac{1}{4} l\frac{2}{\pi}$ V. T. 127, N. 3.

2) $\int Sin^4\left(\frac{\pi}{4}-x\right) . Tg\left(\frac{\pi}{4}-x\right) \frac{dx}{l\,Sin\,2x} = \frac{1}{8} l\frac{8}{\pi^2}$ V. T. 298, N. 1, 4.

3) $\int Sin^2\left(\frac{\pi}{4}-x\right) . Tg\left(\frac{\pi}{4}-x\right) . Sin\,2x \frac{dx}{l\,Sin\,2x} = \frac{1}{4} l\frac{\pi}{4}$ V. T. 298, N. 1, 4.

4) $\int Sin^2\left(\frac{\pi}{4}-x\right) . Cos\,2x \frac{dx}{l\,Sin\,2x} = -\frac{1}{4} l2$ V. T. 123, N. 4.

5) $\int (1 - Sin^{q-1} 2x)\, Tg\left(\frac{\pi}{4} - x\right) \frac{dx}{l\, Sin\, 2x} = \frac{1}{2}\, l \frac{\Gamma\left(\frac{q}{2}\right)}{\Gamma\left(\frac{1}{2}\right)\Gamma\left(\frac{q+1}{2}\right)}$ V. T. 127, N. 4.

6) $\int (1 - Sin^p 2x)(1 - Sin^q 2x)\, Tg\left(\frac{\pi}{4} + x\right) \frac{dx}{l\, Sin\, 2x} = \frac{1}{2}\, l \frac{\Gamma(p+1)\Gamma(q+1)}{\Gamma(p+q+1)}$ V. T. 127, N. 8.

7) $\int Sin^2 x . Tg\, x \frac{dx}{l\, Cos\, 2x} = \frac{1}{4}\, l \frac{2}{\pi}$ V. T. 127, N. 3.

8) $\int Sin^2 x . Sin\, 2x \frac{dx}{l\, Cos\, 2x} = -\frac{1}{4}\, l\, 2$ V. T. 123, N. 3.

9) $\int Sin^2 x . Cos\, 2x . Tg\, x \frac{dx}{l\, Cos\, 2x} = \frac{1}{4}\, l \frac{\pi}{4}$ V. T. 298, N. 7, 8.

10) $\int Sin^4 x . Tg\, x \frac{dx}{l\, Cos\, 2x} = \frac{1}{8}\, l \frac{8}{\pi^2}$ V. T. 298, N. 7, 8.

11) $\int Cos^q 2x . Sin^{2a} x . Tg\, 2x \frac{dx}{(l\, Cos\, 2x)^2} = \frac{1}{2^{q+1}} \sum_0^a (-1)^n \binom{a}{n} (q+n+1)\, l(q+n+1)$ V. T. 124, N. 6.

12) $\int Tg\left(\frac{\pi}{4} - x\right) \frac{dx}{Cos^2 x . l\, Tg\, x} = l \frac{2}{\pi}$ V. T. 127, N. 3.

13) $\int (1 - Tg\, x)^2 \frac{dx}{l\, Tg\, x} = l \frac{\pi}{4}$ V. T. 128, N. 2.

14) $\int Tg\left(\frac{\pi}{4} - x\right) \frac{dx}{l\, Tg\, x} = -\frac{1}{2}\, l\, 2$ (VIII, 545).

15) $\int Tg\left(\frac{\pi}{4} - x\right) \frac{Tg^2 x}{l\, Tg\, x} dx = l \frac{2\sqrt{2}}{\pi}$ V. T. 130, N. 7.

16) $\int Tg\left(\frac{\pi}{4} - x\right) \frac{dx}{Cos^2 x . l\, Tg\, x} = -\, l \frac{\pi}{2}$ V. T. 298, N. 14, 15.

17) $\int Sin(2p\, l\, Tg\, x) \frac{dx}{l\, Tg\, x} = Arctg(e^{p\pi})$ V. T. 405, N. 13.

F. Log. en dén. Fonction monôme; Circ. Dir. fract. à dén. monôme. TABLE 299. Lim. 0 et $\frac{\pi}{4}$.

1) $\int (Sin^{q-1} 2x - Cosec^q 2x)\, Tg\left(\frac{\pi}{4} - x\right) \frac{dx}{l\, Sin\, 2x} = \frac{1}{2}\, l\, Tg \frac{1}{2} q\pi$ V. T. 130, N. 6.

2) $\int (Sin^q 2x - Cosec^q 2x)^2\, Tg\left(\frac{\pi}{4} + x\right) \frac{dx}{l\, Sin\, 2x} = \frac{1}{2}\, l \frac{Sin\, 2q\pi}{2q\pi}$ V. T. 130, N. 11.

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3) $\int (Sin^q 2x - Cosec^q 2x)^2 Tg\left(\frac{\pi}{4} - x\right) \frac{dx}{l Sin 2x} = \frac{1}{2} l(q\pi \, Cot q\pi)$ V. T. 130, N. 7.

4) $\int Sin^q 2x \, . \, Sin^{2a}\left(\frac{\pi}{4} - x\right) \frac{dx}{Tg 2x . (l Sin 2x)^2} = \frac{1}{2^{a+1}} \sum_0^a (-1)^n \binom{a}{n} (q+n+1) l(q+n+1)$ V. T. 124, N. 6.

5) $\int \frac{1 - Cos^{q-1} 2x}{Cot x} \frac{dx}{l Cos 2x} = \frac{1}{2} l \frac{\Gamma\left(\frac{q}{2}\right)}{\Gamma\left(\frac{q+1}{2}\right)\sqrt{\pi}}$ V. T. 127, N. 4.

6) $\int (Cos^{q-1} 2x - Sec^q 2x) \, Tg x \frac{dx}{l Cos 2x} = \frac{1}{2} l \, Tg \frac{1}{2} q\pi$ V. T. 130, N. 6.

7) $\int \frac{(1 - Cos^p 2x)(1 - Cos^q 2x)}{Tg x} \frac{dx}{l Cos 2x} = \frac{1}{2} l \frac{\Gamma(p+1)\Gamma(q+1)}{\Gamma(p+q+1)}$ V. T. 127, N. 8.

8) $\int (Cos^q 2x - Sec^q 2x)^2 \, Tg x \frac{dx}{l Cos 2x} = \frac{1}{2} l(q\pi \, Cot q\pi)$ V. T. 130, N. 7.

9) $\int \frac{(Cos^q 2x - Sec^q 2x)^2}{Tg x} \frac{dx}{l Cos 2x} = \frac{1}{2} l \frac{Sin 2q\pi}{2q\pi}$ V. T. 130, N. 11.

10) $\int \frac{Tg\left(\frac{\pi}{4} - x\right)}{Cos^2 x} \frac{dx}{l Tg x} = l \frac{2}{\pi}$ V. T. 127, N. 3.

11) $\int (Tg^p x - Cot^p x) \frac{dx}{l Tg x} = l \, Tg\left(\frac{1+p}{4}\pi\right)$ V. T. 130, N. 8.

12) $\int \frac{Cos x - Sin x}{Cos^3 x} \frac{dx}{l Tg x} = -l2$ V. T. 123, N. 4.

13) $\int \frac{Tg^q x - Tg^p x}{Sin 2x} \frac{dx}{l Tg x} = \frac{1}{2} l \frac{q}{p}$ V. T. 123, N. 3.

14) $\int \frac{(Tg^q x - Cot^q x)^2}{Cos 2x} \frac{dx}{l Tg x} = l \, Cos q\pi$ V. T. 130, N. 12.

15) $\int \frac{(Tg^q x - Cot^q x)^2}{Cos 2x} Tg x \frac{dx}{l Tg x} = l \frac{Sin q\pi}{q\pi}$ V. T. 130, N. 13.

16) $\int \frac{(1 - Tg^q x)(1 - Tg^{q+1} x)}{Cos 2x} \frac{dx}{l Tg x} = -q l2$ V. T. 128, N. 12.

17) $\int \left(\frac{Cos x - Sin x}{Cos^3 x}\right)^2 \frac{dx}{(l Tg x)^2} = l \frac{27}{16}$ V. T. 124, N. 1.

F. Log. en dén. Fonction mon.; Circ. Dir. fract. à dén. mon. **TABLE 299. suite.** Lim. 0 et $\frac{\pi}{4}$.

18) $\int\left(\frac{Cos\,x - Sin\,x}{Cos^3 x}\right)^2 \frac{Sin\,2x}{(l\,Tg\,x)^2}\,dx = 4\,l\,\frac{32}{27}$ V. T. 124, N. 3.

19) $\int(Tg^q x + Cot^q x)\frac{dx}{(l\,Tg\,x)^p} = Cos\,p\pi.\Gamma(1-p)\sum_0^\infty(-1)^n\left\{\frac{1}{(2n+1-q)^{1-p}} + \frac{1}{(2n+1+q)^{1-p}}\right\}$

V. T. 131, N. 1.

20) $\int\frac{Tg^q x - Cot^q x}{Cos\,2x}\,\frac{dx}{(l\,Tg\,x)^p} = -Cos\,p\pi.\Gamma(1-p)\sum_0^\infty\left\{\frac{1}{(2n+1-q)^{1-p}} - \frac{1}{(2n+1+q)^{1-p}}\right\}$

V. T. 131, N. 2.

21) $\int\frac{Cos(2p\,l\,Tg\,x)}{Tg\,2x}\,\frac{dx}{l\,Tg\,x} = \frac{1}{2}\,l\,\frac{1-e^{-p\pi}}{1+e^{-p\pi}}$ V. T. 405, N. 15.

F. Log. en dén. Fonction monôme; Circ. Dir. fract. à dén. d'autre forme. **TABLE 300.** Lim. 0 et $\frac{\pi}{4}$.

1) $\int\frac{Sin^2 x.\,Tg\,x}{1+Cos^2 2x}\,\frac{dx}{l\,Cos\,2x} = -\frac{1}{4}\,l\,2$ V. T. 130, N. 16.

2) $\int\frac{Sin^2 x.\,Tg\,x}{1+Sec^2 2x}\,\frac{dx}{l\,Cos\,2x} = \frac{1}{2}\,l\,\frac{2\sqrt{2}}{\pi}$ V. T. 130, N. 17.

3) $\int\frac{Cos\,2x}{1-2\,Sin^2 x.\,Cos^2 x}\,\frac{dx}{l\,Tg\,x} = l\,Cot\,\frac{3\pi}{8}$ V. T. 128, N. 3.

4) $\int\frac{Cos\,x - Sin\,x}{Cos\,x + Sin\,x}\,\frac{dx}{l\,Tg\,x} = -\frac{1}{2}\,l\,2$ (VIII, 545).

5) $\int\frac{(1-Tg^q x)(1-Tg^p x)-(1-Tg\,x)^2}{Cos\,x - Sin\,x}\,\frac{dx}{Sin\,x.\,l\,Tg\,x} = l\,\frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}$ V. T. 130, N. 18.

6) $\int\frac{1-Tg^q x}{Sin\,x + Cos\,x}\,\frac{Tg^p x}{Cos\,x.\,l\,Tg\,x}\,dx = l\,\frac{\Gamma\left(\frac{1}{2}p+1\right)\Gamma\left(\frac{p+q+1}{2}\right)}{\Gamma\left(\frac{p+1}{2}\right)\Gamma\left(\frac{p+q}{2}+1\right)}$ V. T. 127, N. 6.

7) $\int\frac{Tg^p x - Tg^q x}{Sin\,x + Cos\,x}\,\frac{dx}{Sin.x\,l\,Tg\,x} = l\,\frac{\Gamma\left(\frac{q}{2}\right)\Gamma\left(\frac{p+1}{2}\right)}{\Gamma\left(\frac{q+1}{2}\right)\Gamma\left(\frac{p}{2}\right)}$ V. T. 127, N. 5.

8) $\int\frac{Tg^q x - Cot^q x}{Tg^p x + Cot^p x}\,\frac{dx}{Sin\,2x\,l.Tg\,x} = \frac{1}{2}\,l\,Tg\left(\frac{p+q}{4p}\pi\right)$ V. T. 128, N. 5.

9) $\int\frac{(Tg^q x - Cot^q x)^2}{Tg^p x - Cot^p x}\,\frac{dx}{Sin\,2x.\,l\,Tg\,x} = \frac{1}{2}\,l\,Cos\,\frac{q\pi}{p}$ V. T. 128, N. 8.

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F. Log. en dén. Fonction monôme; Circ. Dir. fract. à dén. d' autre forme. TABLE 300, suite. Lim. 0 et $\frac{\pi}{4}$.

10) $\int \frac{Tg^{p-1}x - Cot^p x}{Sin\,x + Cos\,x} \frac{dx}{Cos\,x . l\,Tg\,x} = l\,Tg\frac{1}{2}p\pi$ V. T. 130, N. 6.

11) $\int \frac{(Tg^p x - Cot^p x)^2}{Sin\,x + Cos\,x} \frac{dx}{Cos\,x . l\,Tg\,x} = l(p\pi\, Cot\, p\pi)$ V. T. 130, N. 7.

12) $\int \frac{(Tg^p x - Cot^p x)^2}{Sin\,x - Cos\,x} \frac{dx}{Cos\,x . l\,Tg\,x} = l(2p\pi\, Cosec\, 2p\pi)$ V. T. 130, N. 11.

13) $\int \frac{1 - Tg^q x}{Cos\,x - Sin\,x} \frac{1 - Tg^p x}{Sin\,x} \frac{Tg^r x}{l\,Tg\,x} dx = l\frac{\Gamma(p+r)\Gamma(q+r)}{\Gamma(p+q+r)\Gamma(r)}$ V. T. 127, N. 9.

14) $\int \frac{1 - Tg^{q-1}x}{Sin\,x - Cos\,x} \frac{1 - Tg^{q-\frac{1}{2}}x}{\sqrt{Sin\,2x}} \frac{dx}{l\,Tg\,x} = \frac{2q-2}{\sqrt{2}} l2$ V. T. 132, N. 15.

15) $\int \frac{1}{1 + Cos\,\lambda . Sin\,2x} \frac{dx}{(l\,Cot\,x)^{1-q}} = Cosec\,\lambda . \Gamma(q) \sum_1^\infty (-1)^{n-1} \frac{Sin\,n\lambda}{n^q}$ V. T. 130, N. 1.

16) $\int \frac{Sin\,x + Cos\,x}{1 + Cos\,\lambda . Sin\,2x} \frac{Sec\,x}{(l\,Cot\,x)^{1-q}} dx = Sec\frac{1}{2}\lambda . \Gamma(q) \sum_1^\infty (-1)^{n-1} \frac{Cos\{(2n-1)\frac{1}{2}\lambda\}}{n^q}$ V. T. 130, N. 5.

F. Log. en dén. Fonction binôme; Circ. Dir. ent. TABLE 301. Lim. 0 et $\frac{\pi}{4}$.

1) $\int \frac{dx}{\pi^2 + (l\,Tg\,x)^2} = \frac{4-\pi}{4\pi}$ V. T. 129, N. 6.

2) $\int \frac{dx}{\pi^2 + (l\,Tg^2 x)^2} = \frac{1}{4\pi} l2$ V. T. 129, N. 7.

3) $\int \frac{dx}{q^2 + (l\,Tg\,x)^2} = \frac{1}{4q}\left\{Z'\left(\frac{2q+3\pi}{4\pi}\right) - Z'\left(\frac{2q+\pi}{4\pi}\right)\right\}$ V. T. 129, N. 9.

4) $\int Tg\left(\frac{\pi}{4}+x\right) \frac{l\,Sin\,2x}{4\pi^2 + (l\,Sin\,2x)^2} dx = \frac{1}{8}(1 - 2A)$ V. T. 129, N. 1.

5) $\int Tg\left(\frac{\pi}{4}+x\right) \frac{l\,Sin\,2x}{q^2 + (l\,Sin\,2x)^2} dx = \frac{1}{4}\left\{l\frac{2\pi}{q} + \frac{\pi}{q} + Z'\left(\frac{q}{2\pi}\right)\right\}$ V. T. 129, N. 2.

6) $\int Tg\left(\frac{\pi}{4}+x\right) \frac{l\,Sin\,2x}{q^2 - (l\,Sin\,2x)^2} dx = \frac{2\pi^2}{q^2} \sum_0^\infty (-1)^{n-1} \left(\frac{2\pi}{q}\right)^{2n} \frac{1}{n+1} B_{2n+1}$ V. T. 129, N. 3.

7) $\int Tg\left(\frac{\pi}{4}+x\right) \frac{l\,Sin\,2x}{\{q^2 + (l\,Sin\,2x)^2\}^2} dx = -\frac{\pi^2}{2q^4} \sum_0^\infty B_{2n+1} \left(\frac{2\pi}{q}\right)^{2n}$ V. T. 129, N. 4.

8) $\int Tg\left(\frac{\pi}{4}+x\right) \frac{l\,Sin\,2x}{\{q^2 - (l\,Sin\,2x)^2\}^2} dx = \frac{\pi^2}{2q^4} \sum_0^\infty (-1)^{n+1} \left(\frac{2\pi}{q}\right)^{2n} B_{2n+1}$ V. T. 129, N. 5.

9) $\int Tg\,2x . l\,Sin\,x \frac{4\pi^2 - (l\,Cos\,2x)^2}{\{4\pi^2 + (l\,Cos\,2x)^2\}^2} dx = \frac{1}{16}(1 - 2A)$ V. T. 302, N. 1.

10) $\int Tg\,2x . l\,Sin\,x \frac{q^2 - (l\,Cos\,2x)^2}{\{q^2 + (l\,Cos\,2x)^2\}^2} dx = \frac{1}{8}\left\{l\frac{2\pi}{q} + \frac{\pi}{q} + Z'\left(\frac{q}{2\pi}\right)\right\}$ V. T. 302, N. 2.

11) $\int Tg\,2x . l\,Sin\,x \frac{q^2 + (l\,Cos\,2x)^2}{\{q^2 - (l\,Cos\,2x)^2\}^2} dx = \frac{\pi^2}{q^2} \sum_0^\infty (-1)^{n+1} \left(\frac{2\pi}{q}\right)^{2n} \frac{B_{2n+1}}{n+1}$ V. T. 302, N. 3.

12) $\int Tg\,2x . l\,Sin\,x \frac{q^2 - 3(l\,Cos\,2x)^2}{\{q^2 + (l\,Cos\,2x)^2\}^3} dx = -\frac{\pi^2}{4q^4} \sum_0^\infty \left(\frac{2\pi}{q}\right)^{2n} B_{2n+1}$ V. T. 302, N. 4.

13) $\int Tg\,2x . l\,Sin\,x \frac{q^2 + 3(l\,Cos\,2x)^2}{\{q^2 - (l\,Cos\,2x)^2\}^3} dx = \frac{\pi^2}{4q^4} \sum_0^\infty (-1)^{n-1} \left(\frac{2\pi}{q}\right)^{2n} B_{2n+1}$ V. T. 302, N. 5.

F. Log. en dén. Fonction binôme; Circ. Dir. en dén. rat. TABLE 302. Lim. 0 et $\frac{\pi}{4}$.

1) $\int \frac{l\,Cos\,2x}{4\pi^2 + (l\,Cos\,2x)^2} \frac{dx}{Tg\,x} = \frac{1}{8}(1 - 2A)$ V. T. 129, N. 1.

2) $\int \frac{l\,Cos\,2x}{q^2 + (l\,Cos\,2x)^2} \frac{dx}{Tg\,x} = \frac{1}{8}\left\{l\frac{2\pi}{q} + \frac{\pi}{q} + Z'\left(\frac{q}{2\pi}\right)\right\}$ V. T. 129, N. 2.

3) $\int \frac{l\,Cos\,2x}{q^2 - (l\,Cos\,2x)^2} \frac{dx}{Tg\,x} = \frac{2\pi^2}{q^2} \sum_0^\infty (-1)^{n+1} \left(\frac{2\pi}{q}\right)^{2n} \frac{B_{2n+1}}{n+1}$ V. T. 129, N. 3.

4) $\int \frac{l\,Cos\,2x}{\{q^2 + (l\,Cos\,2x)^2\}^2} \frac{dx}{Tg\,x} = -\frac{\pi^2}{4q^4} \sum_0^\infty \left(\frac{2\pi}{q}\right)^{2n} B_{2n+1}$ V. T. 129, N. 4.

5) $\int \frac{l\,Cos\,2x}{\{q^2 - (l\,Cos\,2x)^2\}^2} \frac{dx}{Tg\,x} = \frac{\pi^2}{2q^4} \sum_0^\infty (-1)^{n+1} \left(\frac{2\pi}{q}\right)^{2n} B_{2n+1}$ V. T. 129, N. 5.

6) $\int \frac{Tg^q\,x}{Sin\,2x} \frac{dx}{p + l\,Tg\,x} = \frac{1}{2} e^{-pq} Ei(pq)$ V. T. 125, N. 1.

7) $\int \frac{Tg^q\,x}{Sin\,2x} \frac{dx}{p - l\,Tg\,x} = -\frac{1}{2} e^{pq} Ei(-pq)$ V. T. 125, N. 2.

8) $\int \frac{Tg\,x}{Cos\,2x} \frac{l\,Tg\,x}{q^2 + (l\,Tg\,x)^2} dx = \frac{\pi}{4q} + \frac{1}{2} l\frac{\pi}{q} + \frac{1}{2} Z'\left(\frac{q}{\pi}\right)$ V. T. 129, N. 14.

9) $\int \frac{Tg\,x}{Cos\,2x} \frac{l\,Tg\,x}{q^2 - (l\,Tg\,x)^2} dx = \frac{\pi^2}{4q^2} \sum_0^\infty (-1)^{n-1} \left(\frac{\pi}{q}\right)^{2n} \frac{B_{2n+1}}{n+1}$ V. T. 129, N. 15.

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10) $\int \frac{lTgx}{\pi^2+(lTgx)^2}\,\frac{dx}{Cos2x}=\frac{1}{2}\left\{\frac{1}{2}-l2\right\}$ V. T. 129, N. 10.

11) $\int \frac{lTgx}{\pi^2+(lTgx)^2}\,\frac{Tgx}{Cos2x}\,dx=\frac{1}{4}-\frac{1}{2}A$ V. T. 129, N. 13.

12) $\int \frac{lTgx}{\pi^2+(lTg^2x)^2}\,\frac{dx}{Cos2x}=\frac{2-\pi}{16}$ V. T. 129, N. 11.

13) $\int \frac{lTgx}{q^2+(lTg2x)^2}\,\frac{Tgx}{Cos2x}\,dx=\frac{1}{4}-\frac{1}{2}l\frac{q}{2\pi}+\frac{\pi}{2q}+\frac{1}{2}Z'\left(\frac{q}{2\pi}\right)$ V. T. 129, N. 2.

14) $\int \frac{lTgx}{\pi^2+(lTg^4x)^2}\,\frac{dx}{Cos2x}=-\frac{\pi\sqrt{2}}{64}+\frac{1}{16}+\frac{1}{32\sqrt{2}}\,l\frac{\sqrt{2}-1}{\sqrt{2}+1}$ V. T. 129, N. 12.

15) $\int \frac{Tg^p x-Cot^p x}{\pi^2+(lTgx)^2}\,\frac{dx}{Cos2x}=\frac{1}{2\pi}\left\{p\pi\,Cosp\pi-Sinp\pi\,.\,l\{2(1+Cosp\pi)\}\right\}\ [p<1]$

V. T. 131, N. 4.

16) $\int \frac{Tg^p x+Cot^p x}{\pi^2+(lTgx)^2}\,\frac{lTgx}{Cos2x}\,dx=\frac{1}{2}\left\{1-p\pi\,Sinp\pi-Cosp\pi.l\{2(1+Cosp\pi)\}\right\}\ [p<1]$

V. T. 131, N. 3.

17) $\int \frac{Tg^p x-Cot^p x}{\pi^2+(lTg^2x)^2}\,\frac{dx}{Cos2x}=-\frac{1}{4}Sin\frac{1}{2}p\pi+\frac{\pi}{4}Cos\frac{1}{2}p\pi.l\frac{1+Sin\frac{1}{2}p\pi}{1-Sin\frac{1}{2}p\pi}\ [p<1]$

V. T. 131, N. 6.

18) $\int \frac{Tg^p x+Cot^p x}{\pi^2+(lTg^2x)^2}\,\frac{lTgx}{Cos2x}\,dx=\frac{1}{4}-\frac{\pi}{8}Cos\frac{1}{2}p\pi+\frac{1}{8}Sin\frac{1}{2}p\pi.l\frac{1-Sin\frac{1}{2}p\pi}{1+Sin\frac{1}{2}p\pi}\ [p<1]$

V. T. 131, N. 5.

19) $\int \frac{lTgx}{\{q^2+(lTgx)^2\}^2}\,\frac{Tgx}{Cos2x}\,dx=-\frac{\pi^4}{4q^4}\sum_0^\infty\left(\frac{\pi}{q}\right)^{2n}B_{2n+1}$ V. T. 129, N. 16.

20) $\int \frac{lTgx}{\{q^2-(lTgx)^2\}^2}\,\frac{Tgx}{Cos2x}\,dx=\frac{\pi^2}{4q^4}\sum_0^\infty(-1)^{n-1}\left(\frac{\pi}{q}\right)^{2n}B_{2n+1}$ V. T. 129, N. 17.

21) $\int lTg\left(\frac{\pi}{4}\pm x\right)\frac{\pi^2-(lTgx)^2}{\{\pi^2+(lTgx)^2\}^2}\,\frac{dx}{Sin2x}=\pm\frac{1}{2}\left\{l2-\frac{1}{2}\right\}$ V. T. 302, N. 10.

22) $\int lTg\left(\frac{\pi}{4}\pm x\right)\frac{\pi^2-(lTg^2x)^2}{\{\pi^2+(lTg^2x)^2\}^2}\,\frac{dx}{Sin2x}=\pm\frac{\pi-2}{16}$ V. T. 302, N. 12.

23) $\int lTg\left(\frac{\pi}{4}\pm x\right)\frac{\pi^2-(lTg^4x)^2}{\{\pi^2+(lTg^4x)^2\}^2}\,\frac{dx}{Sin2x}=\pm\left\{\frac{\pi\sqrt{2}}{64}-\frac{1}{16}+\frac{1}{32\sqrt{2}}\,l\frac{\sqrt{2}+1}{\sqrt{2}-1}\right\}$

V. T. 302, N. 14.

24) $\int \frac{l\,Tg\,x}{4\pi^2+(l\,Tg\,x)^2}\,\frac{dx}{Cos\,x.(Cos\,x-Sin\,x)}=\frac{1}{4}(1-2A)$ V. T. 129, N. 1.

25) $\int \frac{l\,Tg\,x}{q^2-(l\,Tg\,x)^2}\,\frac{dx}{Cos\,x.(Cos\,x-Sin\,x)}=\frac{\pi^2}{q^2}\sum_0^\infty(-1)^{n+1}\left(\frac{2\pi}{q}\right)^{2n}\frac{B_{2n+1}}{n+1}$ V. T. 129, N. 3.

F. Log. en dén. Fonction bin.; Circ. Dir. en dén. irrat.

TABLE 303.

Lim. 0 et $\frac{\pi}{4}$.

1) $\int \frac{Tg\left(\frac{\pi}{4}-x\right)}{\pi^2+(l\,Sin\,2x)^2}\,\frac{dx}{\sqrt{Sin\,2x}}=\frac{1}{4\pi}l2$ V. T. 132, N. 1.

2) $\int \frac{Tg\left(\frac{\pi}{4}-x\right)}{\pi^2+4(l\,Sin\,2x)^2}\,\frac{dx}{\sqrt{Sin\,2x}}=\frac{1}{8\pi\sqrt{2}}\left\{\pi-l\frac{\sqrt{2}+1}{\sqrt{2}-1}\right\}$ V. T. 132, N. 3.

3) $\int \frac{Tg\left(\frac{\pi}{4}-x\right)}{q^2+(l\,Sin\,2x)^2}\,\frac{dx}{\sqrt{Sin\,2x}}=\frac{1}{8q}\left\{Z'\left(\frac{q+3\pi}{4\pi}\right)-Z'\left(\frac{q+\pi}{4\pi}\right)\right\}$ V. T. 132, N. 4.

4) $\int \frac{Tg\left(\frac{\pi}{4}+x\right)}{4\pi^2+(l\,Sin\,2x)^2}\,\frac{Sin^p\,2x-Cosec^p\,2x}{\sqrt{Sin\,2x}}dx=\frac{1}{8\pi}[2p\pi\,Cos\,2p\pi+Sin\,2p\pi.\,l\{2(1+Cos\,2p\pi)\}]$
V. T. 132, N. 11.

5) $\int \frac{Tg\left(\frac{\pi}{4}+x\right)}{4\pi^2+(l\,Sin\,2x)^2}\,\frac{Sin^p\,2x+Cosec^p\,2x}{\sqrt{Sin\,2x}}\,l\,Sin\,2x.dx=\frac{1}{4}[1-2p\pi\,Sin\,2p\pi-$
$-Cos\,2p\pi.\,l\{2(1+Cos\,2p\pi)\}]$ V. T. 132, N. 12.

6) $\int \frac{Tg\left(\frac{\pi}{4}+x\right)}{\pi^2+(l\,Sin\,2x)^2}\,\frac{Sin^p\,2x-Cosec^p\,2x}{\sqrt{Sin\,2x}}dx=\frac{1}{4}\left\{\frac{1}{\pi}Cos\,p\pi.\,l\frac{1+Sin\,p\pi}{1-Sin\,p\pi}-Sin\,p\pi\right\}$
V. T. 132, N. 9.

7) $\int \frac{Tg\left(\frac{\pi}{4}+x\right)}{q^2+(l\,Sin\,2x)^2}\,\frac{Sin^p\,2x-Cosec^p\,2x}{\sqrt{Sin\,2x}}dx=\frac{\pi}{q}\sum_1^\infty\frac{Sin\{(2p+1)n\pi\}}{q+n\pi}$ $[p<1]$ V. T. 132, N. 13.

8) $\int \frac{Tg\left(\frac{\pi}{4}+x\right)}{\pi^2+(l\,Sin\,2x)^2}\,\frac{l\,Sin\,2x}{\sqrt{Sin\,2x}}dx=\frac{2-\pi}{8}$ V. T. 132, N. 5.

9) $\int \frac{Tg\left(\frac{\pi}{4}+x\right)}{\pi^2+4(l\,Sin\,2x)^2}\,\frac{l\,Sin\,2x}{\sqrt{Sin\,2x}}dx=\frac{-1}{16\sqrt{2}}\left\{\pi-2\sqrt{2}+l\frac{\sqrt{2}+1}{\sqrt{2}-1}\right\}$ V. T. 132, N. 6.

10) $\int \frac{Tg\left(\frac{\pi}{4}+x\right)}{\pi^2+(l\,Sin\,2x)^2} \frac{Sin^p\,2x+Cosec^p\,2x}{\sqrt{Sin\,2x}} l\,Sin\,2x.dx = \frac{1}{2} - \frac{\pi}{4} Cos\,p\pi - \frac{1}{4} Sin\,p\pi.l\frac{1+Sin\,p\pi}{1-Sin\,p\pi}$ V. T. 132, N. 10.

11) $\int \frac{Tg\left(\frac{\pi}{4}+x\right)}{q^2+(l\,Sin\,2x)^2} \frac{Sin^p\,2x+Cosec^p\,2x}{\sqrt{Sin\,2x}} l\,Sin\,2x.dx = -\frac{\pi}{2q} - \pi\sum_1^\infty \frac{Cos\{(2p+1)n\pi\}}{q+n\pi}$ $[p^2<1]$ V. T. 132, N. 14.

12) $\int \frac{Tg\,x}{\pi^2+(l\,Cos\,2x)^2} \frac{dx}{\sqrt{Cos\,2x}} = \frac{1}{4\pi} l2$ V. T. 132, N. 1.

13) $\int \frac{Tg\,x}{\pi^2+4(l\,Cos\,2x)^2} \frac{dx}{\sqrt{Cos\,2x}} = \frac{1}{8\pi\sqrt{2}} \left\{\pi + l\frac{\sqrt{2}-1}{\sqrt{2}+1}\right\}$ V. T. 132, N. 3.

14) $\int \frac{Tg\,x}{q^2+(l\,Cos\,2x)^2} \frac{dx}{\sqrt{Cos\,2x}} = \frac{1}{8q}\left\{Z'\left(\frac{q+3\pi}{4\pi}\right) - Z'\left(\frac{q+\pi}{4\pi}\right)\right\}$ V. T. 132, N. 4.

15) $\int \frac{Cos^p\,2x - Sec^p\,2x}{\pi^2+(l\,Cos\,2x)^2} \frac{dx}{Tg\,x.\sqrt{Cos\,2x}} = \frac{1}{4}\left\{\frac{1}{\pi} Cos\,p\pi.l\frac{1+Sin\,p\pi}{1-Sin\,p\pi} - Sin\,p\pi\right\}$ V. T. 132, N. 9.

16) $\int \frac{Cos^p\,2x - Sec^p\,2x}{4\pi^2+(l\,Cos\,2x)^2} \frac{dx}{Tg\,x.\sqrt{Cos\,2x}} = \frac{-1}{8\pi}\left\{2p\pi\,Cos\,2p\pi + Sin\,2p\pi.l\{2(1+Cos\,2p\pi)\}\right\}$ V. T. 132, N. 11.

17) $\int \frac{Cos^p\,2x - Sec^p\,2x}{q^2+(l\,Cos\,2x)^2} \frac{dx}{Tg\,x.\sqrt{Cos\,2x}} = \frac{\pi}{q}\sum_1^\infty \frac{Sin\{(2p+1)n\pi\}}{q+n\pi}$ $[p<1]$ V. T. 132, N. 13.

18) $\int \frac{l\,Cos\,2x}{\pi^2+(l\,Cos\,2x)^2} \frac{dx}{Tg\,x.\sqrt{Cos\,2x}} = \frac{2-\pi}{8}$ V. T. 132, N. 5.

19) $\int \frac{l\,Cos\,2x}{\pi^2+4(l\,Cos\,2x)^2} \frac{dx}{Tg\,x.\sqrt{Cos\,2x}} = \frac{-1}{16\sqrt{2}}\left\{\pi - 2\sqrt{2} + l\frac{\sqrt{2}+1}{\sqrt{2}-1}\right\}$ V. T. 132, N. 6.

20) $\int \frac{Cos^p\,2x + Sec^p\,2x}{\pi^2+(l\,Cos\,2x)^2} \frac{l\,Cos\,2x}{Tg\,x.\sqrt{Cos\,2x}} dx = \frac{1}{2} - \frac{\pi}{4} Cos\,p\pi - \frac{1}{4} Sin\,p\pi.l\frac{1+Sin\,p\pi}{1-Sin\,p\pi}$ V. T. 132, N. 10.

21) $\int \frac{Cos^p\,2x + Sec^p\,2x}{4\pi^2+(l\,Cos\,2x)^2} \frac{l\,Cos\,2x}{Tg\,x.\sqrt{Cos\,2x}} dx = \frac{1}{4}\left\{1 - 2p\pi\,Sin\,2p\pi - Cos\,2p\pi.l\{2(1+Cos\,2p\pi)\}\right\}$ V. T. 132, N. 12.

22) $\int \frac{Cos^p\,2x + Sec^p\,2x}{q^2+(l\,Cos\,2x)^2} \frac{l\,Cos\,2x}{Tg\,x.\sqrt{Cos\,2x}} dx = -\frac{\pi}{2q} - \pi\sum_1^\infty \frac{Cos\{(2p+1)n\pi\}}{q+n\pi}$ $[p<1]$ V. T. 132, N. 14.

23) $\int \frac{1}{q^2+(l\,Tg\,x)^2} \frac{1}{Sin\,x+Cos\,x} \frac{dx}{\sqrt{Sin\,2x}} = \frac{1}{4q\sqrt{2}}\left\{Z'\left(\frac{q+3\pi}{4\pi}\right) - Z'\left(\frac{q+\pi}{4\pi}\right)\right\}$ V. T. 132, N. 4.

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24) $\int \frac{Tg^p x - Cot^p x}{q^2 + (l\,Tg x)^2} \frac{1}{Sin\, x - Cos\, x} \frac{dx}{\sqrt{Sin\, 2x}} = \frac{\pi\sqrt{2}}{q} \sum_1^\infty \frac{Sin\{(2p+1)n\pi\}}{q + n\pi}$ $[p<1]$ V. T. 132, N. 13.

25) $\int \frac{Tg^p x + Cot^p x}{q^2 + (l\,Tg x)^2} \frac{l\,Tg x}{Sin\, x - Cos\, x} \frac{dx}{\sqrt{Sin\, 2x}} = \frac{\pi}{q\sqrt{2}} + \pi\sqrt{2}.\sum_1^\infty \frac{Cos\{(2p+1)n\pi\}}{q + n\pi}$ $[p<1]$

V. T. 132, N. 14.

F. Logarithmique; Circul. Directe. Autre forme. TABLE 304. Lim. 0 et $\frac{\pi}{4}$.

1) $\int l\,Tg x . Sin\,(p\,l\,Tg x) . dx = \frac{\pi^2}{4} \frac{e^{\frac{1}{2}p\pi} - e^{-\frac{1}{2}p\pi}}{(e^{\frac{1}{2}p\pi} + e^{-\frac{1}{2}p\pi})^2}$ V. T. 402, N. 5.

2) $\int Sin\,(p\,l\,Tg x) . (Tg^q x - Cot^q x)\, dx = \pi\, Sin \frac{1}{2} q\pi \frac{e^{\frac{1}{2}p\pi} - e^{-\frac{1}{2}p\pi}}{e^{p\pi} + 2\, Cos\, q\pi + e^{-p\pi}}$ $[p^2<1,\ q^2<1]$

V. T. 402, N. 7.

3) $\int Sin^2 (p\,l\,Tg x) . dx = \frac{\pi}{8} \frac{(e^{p\pi} - 1)^2}{e^{2p\pi} + 1}$ V. T. 402, N. 15.

4) $\int Cos\,(p\,l\,Tg x) . dx = \frac{\pi}{2} \frac{e^{\frac{1}{2}p\pi}}{e^{p\pi} + 1}$ V. T. 402, N. 6.

5) $\int Cos^2 (p\,l\,Tg x) . dx = \frac{\pi}{8} \frac{(e^{p\pi} + 1)^2}{e^{2p\pi} + 1}$ V. T. 402, N. 16.

6) $\int Cos\,(p\,l\,Tg x) . (Tg^q x + Cot^q x)\, dx = \pi\, Cos \frac{1}{2} q\pi \frac{e^{\frac{1}{2}p\pi} + e^{-\frac{1}{2}p\pi}}{e^{p\pi} + 2\, Cos\, q\pi + e^{-p\pi}}$ $[p^2<1,\ q^2<1]$

V. T. 402, N. 8.

7) $\int Sin\,(p\,l\,Tg x) \frac{dx}{Cos\, 2x} = \frac{\pi}{4} \frac{1 - e^{p\pi}}{1 + e^{p\pi}}$ V. T. 402, N. 9.

8) $\int Sin\,(p\,l\,Tg x) \frac{dx}{Sin\, 4x} = \frac{\pi}{8} \frac{1 + e^{p\pi}}{1 - e^{p\pi}}$ V. T. 403, N. 2.

9) $\int Sin\,(p\,l\,Tg x) \frac{Tg^{q-1} x}{Cos\, 2x} dx = -\sum_1^\infty \frac{p}{(2n + q)^2 + p^2}$ V. T. 402, N. 11.

10) $\int Sin\,(p\,l\,Tg x) . Tg\left(\frac{\pi}{4} + x\right) \frac{dx}{Sin\, 2x} = \frac{\pi}{2} \frac{1 + e^{2p\pi}}{1 - e^{2p\pi}}$ V. T. 403, N. 2.

11) $\int Sin\,(p\,l\,Tg x) . Tg\left(\frac{\pi}{4} - x\right) \frac{dx}{Sin\, 2x} = \frac{-\pi}{e^{p\pi} - e^{-p\pi}}$ V. T. 403, N. 1.

12) $\int Sin\,(p\,l\,Tg x) \frac{Tg^q x + Cot^q x}{Cos\, 2x} dx = -\frac{\pi}{2} \frac{e^{p\pi} - e^{-p\pi}}{e^{p\pi} + 2\, Cos\, q\pi + e^{-p\pi}}$ $[q^2 \leq 1]$ V. T. 402, N. 12

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13) $\int \frac{Cos(p\,l\,Tg\,x)}{l\,Tg\,x} \frac{dx}{Cos\,2x} = \frac{1}{4} l(e^{\frac{1}{2}p\pi} + e^{-\frac{1}{2}p\pi})$ V. T. 405, N. 14.

14) $\int Cos(p\,l\,Tg\,x) \frac{l\,Tg\,x}{Sin\,4x} dx = \frac{1}{4}\pi^2 \frac{e^{p\pi}}{(1-e^{p\pi})^2}$ V. T. 403, N. 4.

15) $\int l\,Tg\,x . Cos(p\,l\,Tg\,x) \frac{dx}{Cos\,2x} = \frac{1}{2}\pi^2 \frac{e^{p\pi}}{(e^{p\pi}+1)^2}$ V. T. 402, N. 13.

16) $\int Cos(p\,l\,Tg\,x) . Tg\left(\frac{\pi}{4} - x\right) \frac{l\,Tg\,x}{Sin\,2x} dx = \pi^2 e^{-p\pi} \frac{1+e^{-2p\pi}}{(1-e^{-2p\pi})^2}$ V. T. 403, N. 3.

17) $\int Cos(p\,l\,Tg\,x) \frac{Tg^q\,x - Cot^q\,x}{Cos\,2x} dx = \frac{-\pi\,Sin\,q\pi}{e^{p\pi} + 2\,Cos\,q\pi + e^{-p\pi}}$ V. T. 402, N. 14.

18) $\int Sin(p\,l\,Tg\,x) \frac{1}{1+Cos\,\lambda . Sin\,2x} \frac{dx}{Tg\,2x} = -\frac{\pi}{2} \frac{e^{p\lambda}+e^{-p\lambda}}{e^{p\pi}-e^{-p\pi}}$ V. T. 404, N. 10.

19) $\int Cos(p\,l\,Tg\,x) \frac{dx}{1+Cos\,\lambda . Sin\,2x} = \frac{\pi}{2} Cosec\,\lambda \frac{e^{p\lambda}-e^{-p\lambda}}{e^{p\pi}-e^{-p\pi}}$ V. T. 404, N. 6.

20) $\int Cos(p\,l\,Tg\,x) \frac{1}{1+Cos\,\lambda . Sin\,2x} \frac{dx}{Sin\,2x} = -\frac{\pi}{2} Cot\,\lambda \frac{e^{p\lambda}-e^{-p\lambda}}{e^{p\pi}-e^{-p\pi}}$ V. T. 404, N. 11.

21) $\int Sin(p\,l\,Tg\,x) \frac{dx}{l\,Tg\,x} = Arctg(e^{\frac{1}{2}p\pi})$ V. T. 405, N. 13.

22) $\int Cos(p\,l\,Tg\,x) \frac{dx}{Tg\,2x . l\,Tg\,x} = \frac{1}{2} l \frac{1-e^{-\frac{1}{2}p\pi}}{1+e^{-\frac{1}{2}p\pi}}$ V. T. 405, N. 15.

23) $\int Cos(p\,l\,Tg\,x) \frac{dx}{Sin\,4x . l\,Tg\,x} = -\frac{1}{4} l(e^{\frac{1}{2}p\pi} - e^{-\frac{1}{2}p\pi})$ V. T. 405, N. 16.

24) $\int \frac{dx}{\sqrt{l\,Cot\,x}} = \sqrt{\pi} . \sum_0^\infty \frac{(-1)^n}{\sqrt{2n+1}}$ V. T. 133, N. 2.

25) $\int \frac{l\,l\,Cot\,x}{\sqrt{l\,Cot\,x}} dx = \sqrt{\pi} . \sum_0^\infty (-1)^{n+1} \frac{l(2n+1)+2\,l\,2+A}{\sqrt{2n+1}}$ V. T. 147, N. 4.

26) $\int \frac{Sin^{p-1}\,x}{Cos^{p+1}\,x . \sqrt{l\,Cot\,x}} dx = \sqrt{\frac{\pi}{p+1}}$ V. T. 144, N. 10.

27) $\int \frac{Tg^p\,x}{Sin\,2x . \sqrt{l\,Cot\,x}} dx = \frac{1}{2}\sqrt{\frac{\pi}{p}}$ V. T. 133, N. 1.

28) $\int \frac{l\,l\,Cot\,x . Tg^p\,x}{Sin\,2x . \sqrt{l\,Cot\,x}} dx = -\frac{1}{2}\sqrt{\frac{\pi}{q}} . (A + 2\,l\,2 + l\,p)$ V. T. 147, N. 3.

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29) $\int \frac{1}{2+Sin\,2x} \frac{dx}{\sqrt{l\,Cot\,x}} = \frac{1}{2}\,Cosec\,\frac{\pi}{3}\,.\,\sqrt{\pi}.\sum_1^\infty (-1)^{n-1}\,Sin\,\frac{n\pi}{3}\,.\,\frac{1}{\sqrt{n}}$ V. T. 133, N. 3.

30) $\int \frac{l\,l\,Cot\,x}{2+Sin\,2x} \frac{dx}{\sqrt{l\,Cot\,x}} = \frac{1}{2}\,Cosec\,\frac{\pi}{3}\,.\,\sqrt{\pi}.\sum_1^\infty (-1)^{n}\,Sin\,\frac{n\pi}{3}\,.\,\frac{l\,n+2\,l\,2+A}{\sqrt{n}}$ V. T. 147, N. 8.

1) $\int l\,Sin\,x.dx = -\frac{1}{2}\pi\,l\,2$ (VIII, 256).

2) $\int l((Sin\,x)).dx = -\frac{1}{2}\pi\,l\,2 + k\pi^2 i$ (VIII, 258).

3) $\int l((-Sin\,x)).dx = -\frac{1}{2}\pi\,l\,2 + (2k+1)\frac{1}{2}\pi^2 i$ (VIII, 258).

4) $\int l\,Sin\,x\,.\,Sin\,x\,dx = l\,2 - 1$ (VIII, 685).

5) $\int l\,Sin\,x\,.\,Cos\,x\,dx = -1$ (VIII, 423).

6) $\int l\,Sin\,x\,.\,Cos\,q\,x\,dx = -\frac{\pi}{8q}\,[q>1]$ (IV, 462*).

7) $\int l\,Sin\,x\,.\,Sin^2 x\,dx = \frac{1}{8}\pi(1-2\,l\,2)$ (VIII, 544).

8) $\int l\,Sin\,x.Cos^2 x\,dx = -\frac{1}{8}\pi(1+2\,l\,2)$ (VIII, 685).

9) $\int l\,Sin\,x\,.\,Sin\,x\,.\,Cos^2 x\,dx = \frac{1}{9}(3\,l\,2-4)$ (VIII, 685).

10) $\int l\,Sin\,x\,.\,Cos\,2x\,dx = -\frac{1}{4}\pi$ V. T. 305, N. 7, 8.

11) $\int l\,Sin\,x\,.\,Tg\,x\,dx = -\frac{1}{24}\pi^2$ (VIII, 544).

12) $\int l\,Sin\,x\,.Sin^{2a} x\,dx = -\frac{3^{a-1/2}}{1^{a/2}}\,\frac{\pi}{2}\left\{l\,2 + \sum_1^{2a}\frac{(-1)^n}{n}\right\}$ (VIII, 685).

13) $\int l\,Sin\,x.Sin^{2a-1} x\,dx = \frac{2^{a-1/2}}{1^{a/2}}\left\{l\,2 + \sum_1^{2a-1}\frac{(-1)^n}{n}\right\}$ (VIII, 685).

14) $\int l\,Sin\,x.Cos^{2a} x\,dx = -\frac{1^{a/2}}{2^{a+2}\,1^{a/1}}\pi\{A + Z'(a+1) + 2\,l\,2\}$ V. T. 117, N. 3.

15) $\int l\,Sin\,x\,.Sin^q x\,.\,Cos\,x\,dx = -\frac{1}{(q+1)^2}$ V. T. 107, N. 1.

16) $\int l\,Sin\,2x\,.\,Sin\,x\,dx = 2(l2-1)$ (VIII, 423).

17) $\int l\,Sin\,2x\,.\,Cos\,x\,dx = 2(l2-1)$ (VIII, 423).

18) $\int l\,Sin\,x\,.\,Cos\,(p\,Sin\,x)\,.\,Cos\,x\,dx = -\frac{1}{p}\,Si(p)$ V. T. 52, N. 10.

19) $\int (l\,Sin\,x)^2\,dx = \frac{\pi}{2}\left\{(l2)^2 + \frac{1}{12}\pi^2\right\}$ V. T. 118, N. 13.

20) $\int (l\,Sin\,x)^3\,.\,Tg\,x\,dx = -\frac{1}{240}\pi^4$ V. T. 109, N. 11.

21) $\int (l\,Sin\,x)^5\,.\,Tg\,x\,dx = -\frac{1}{504}\pi^6$ V. T. 109, N. 21.

22) $\int (l\,Sin\,x)^p\,.\,Cos\,x\,dx = Cos\,p\pi\,.\,\Gamma(p+1)$ V. T. 30, N. 2.

23) $\int (l\,Sin\,x)^{2a-1}\,.\,Tg\,x\,dx = -\frac{1}{4a}\pi^{2a}\,\mathrm{B}_{2a-1}$ V. T. 110, N. 5.

24) $\int (l\,Sin\,x)^{a-1}\,.\,Tg\,x\,dx = (-1)^{a-1}\,2^{-a}\,1^{a-1/1}\,\sum_1^\infty \frac{1}{n^a}$ V. T. 110, N. 6.

25) $\int (l\,Sin\,x)^q\,.\,Sin^{p-1}\,x\,.\,Cos\,x\,dx = \frac{Cos\,q\pi}{p^{q+1}}\,\Gamma(q+1)$ V. T. 107, N. 3.

26) $\int (l\,Sin\,x)^{a-1}\,.\,Sin^{2q}\,x\,.\,Tg\,x\,dx = (-1)^{a-1}\,2^{-a}\,1^{a-1/1}\,\sum_1^\infty \frac{1}{(q+n)^a}$ V. T. 110, N. 7.

F. Log. en num. $(l\,Cos\,x)^a$; Circ. Dir. rat. ent. TABLE 306. Lim. 0 et $\frac{\pi}{2}$.

1) $\int l\,Cos\,x\,.\,dx = -\frac{1}{2}\pi\,l2$ (VIII, 256).

2) $\int l\,Cos\,x\,.\,Sin\,x\,dx = -1$ (VIII, 423).

3) $\int l\,Cos\,x\,.\,Cos\,x\,dx = l2-1$ (VIII, 685).

4) $\int l\,Cos\,x\,.\,Sin^2\,x\,dx = -\frac{1}{8}\pi(1+2\,l2)$ (VIII, 685).

5) $\int l\,Cos\,x\,.\,Cos^2\,x\,dx = \frac{1}{8}\pi(1-2\,l2)$ (VIII, 685).

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6) $\int l\,Cos\,x.\,Cos\,2x\,dx = \frac{1}{4}\pi$ V. T. 306, N. 4, 5.

7) $\int l\,Cos\,x.\,Sin^2 x.\,Cos\,x\,dx = \frac{1}{9}(3\,l2 - 4)$ (VIII, 685).

8) $\int l\,Cos\,x.\,Sin^{2a} x\,dx = -\frac{1^{a/2}}{2^{a+1}\,1^{a/1}}\frac{\pi}{2}\left\{A + 2\,l2 + Z'(a+1)\right\}$ V. T. 117, N. 3.

9) $\int l\,Cos\,x.\,Cos^{2a-1} x\,dx = \frac{2^{a-1/2}}{1^{a/1}}\left\{l2 + \sum_1^{2a-1}\frac{(-1)^n}{n}\right\}$ (VIII, 685).

10) $\int l\,Cos\,x.\,Cos^{2a} x\,dx = -\frac{3^{a-1/2}}{2^{a/2}}\frac{\pi}{2}\left\{l2 + \sum_1^{2a}\frac{(-1)^n}{n}\right\}$ (VIII, 685).

11) $\int l\,Cos\,x.\,Cos^q x.\,Sin\,x\,dx = \frac{-1}{(q+1)^2}$ V. T. 107, N. 1.

12) $\int l\,Cos\,x.\,Cos^{p-1} x.\,Sin\,x.\,Sin\,px\,dx = \frac{\pi}{2^{p+2}}\left\{A + Z'(p) - \frac{1}{p} - 2\,l2\right\}$ (IV, 432).

13) $\int l\,Cos\,x.\,Cos(p\,Cos\,x).\,Sin\,x\,dx = -\frac{1}{p}\,Si(p)$ V. T. 43, N. 17.

14) $\int (l\,Cos\,x)^2\,dx = \frac{1}{2}\pi\left\{(l\,2)^2 + \frac{1}{12}\pi^2\right\}$ V. T. 118, N. 13.

15) $\int (l\,Cos\,x)^p.\,Sin\,x\,dx = Cos\,p\pi.\,\Gamma(1+p)$ V. T. 30, N. 2.

16) $\int (l\,Cos\,x)^q.\,Cos^p x.\,Tg\,x\,dx = \frac{Cos\,q\pi}{p^{q+1}}\Gamma(q+1)$ V. T. 107, N. 3.

F. Log. en num. $(l\,Tang\,x)^a$; Circ. Dir. rat. ent. TABLE 307. Lim. 0 et $\frac{\pi}{2}$.

1) $\int l\,Tg\,x.\,dx = 0$ (VIII, 257).

2) $\int l(p\,Tg\,x).\,dx = \frac{\pi}{2}\,lp$ V. T. 135, N. 4.

3) $\int l\,Tg\,x.\,Sin\,x\,dx = l\,2$ (VIII, 423).

4) $\int l\,Tg\,x.\,Cos\,x\,dx = -l2$ (VIII, 423).

5) $\int l\,Tg\,x.\,Sin^2 x\,dx = \frac{1}{4}\pi$ V. T. 307, N. 1, 7.

6) $\int l\,Tg\,x.\,Cos^2 x\,dx = -\frac{1}{4}\pi$ V. T. 307, N. 1, 7.

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7) $\int l\,Tg\,x\,.\,Cos\,2x\,dx = -\frac{1}{2}\pi$ V. T. 305, N. 10 et T. 306, N. 6.

8) $\int l(p\,Tg\,x)\,.\,Sin^{q-1}2x\,dx = 2^{q-1}\,l\,p\,\frac{\{\Gamma(\frac{1}{2}q)\}^2}{\Gamma(q)}$ (VIII, 273).

9) $\int l\,Tg\,x\,.\,Cos^{2(q-1)}x\,dx = -\frac{\Gamma(q-\frac{1}{2})}{\Gamma(q)}\,\frac{1}{4}\sqrt{\pi}\,.\left\{A + 2\,l\,2 + Z'\left(\frac{2q-1}{2}\right)\right\}$ (IV, 434).

10) $\int l\,Tg\,x\,.\,Cos^{q-1}x\,.\,Cos\,\{(q+1)x\}\,dx = -\frac{\pi}{2q}$ (IV, 434).

11) $\int l\,Tg\,x\,.\,Cos^{q-1}x\,.\,Cot\,x\,.\,Sin\,\{(q+1)x\}\,dx = -\frac{1}{2}\pi\,\{A + Z'(q+1)\}$ (IV, 434).

12) $\int l\,Tg\,x\,.\,Sin^{2a-1}2x\,.\,Cos\,2x\,dx = -\frac{1}{2a}\,\frac{2^{a-1/2}}{3^{a-1/2}}$ V. T. 40, N. 2.

13) $\int (l\,Tg\,x)^2\,dx = \frac{1}{8}\pi^3$ V. T. 109, N. 3.

14) $\int (l\,Tg\,x)^{2a-1}\,dx = 0$ (VIII, 286).

15) $\int (l\,Tg\,x)^{2a}\,dx = 2\,.\,1^{2a/1}\sum_0^\infty \frac{(-1)^n}{(2n+1)^{2a+1}}$ (VIII, 286).

F. Logar.; Circ. Dir. } Log. de Circ. Dir. d'autre forme, sans facteur Circ. Dir. TABLE 308. Lim. 0 et $\frac{\pi}{2}$.

1) $\int l\,Sin^2(p\,Tg\,x)\,.\,dx = \pi\,l\,\frac{1-e^{-2p}}{2}$ V. T. 417, N. 1.

2) $\int l\,Cos^2(p\,Tg\,x)\,.\,dx = \pi\,l\,\frac{1+e^{-2p}}{2}$ V. T. 417, N. 2.

3) $\int l\,Tg^2(p\,Tg\,x)\,.\,dx = \pi\,l\,\frac{e^p - e^{-p}}{e^p + e^{-p}}$ V. T. 417, N. 3.

4) $\int l\,Cot^2(p\,Tg\,x)\,.\,dx = \pi\,l\,\frac{e^p + e^{-p}}{e^p - e^{-p}}$ V. T. 417, N. 4.

5) $\int l(1 + Cos\,x)\,.\,dx = -\frac{1}{2}\pi\,l\,2 + 2\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 285, N. 1.

6) $\int l(1 - Cos\,x)\,.\,dx = -\frac{1}{2}\pi\,l\,2 - 2\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 204, N. 2.

7) $\int l(1 + p\,Sin\,x)^2\,dx = \pi\,l\,\frac{1+\sqrt{1-p^2}}{2}\,[p^2 < 1], = -\pi\,l\,2p\,[p^2 > 1]$ (VIII, 356*).

8) $\int l(1+p\,Cos\,x)^2\,dx = \pi\, l\frac{1+\sqrt{1-p^2}}{2}$ $[p^2<1]$, $=-\pi\, l 2p$ $[p^2>1]$ (VIII, 856*).

9) $\int l(1+Tg\,x)\,dx = \frac{\pi}{4}\, l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 136, N. 1.

10) $\int l(1-Tg\,x)^2\,dx = \frac{\pi}{2}\, l2 + 2\, l\sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 136, N. 2.

11) $\int l(Tg\,x + Cot\,x)\,dx = \pi\, l2$ V. T. 137, N. 3.

12) $\int l(Tg\,x - Cot\,x)^2\,dx = \pi\, l2$ V. T. 138, N. 4.

13) $\int l(1+p\,Sin^2 x)\,dx = \pi\, l\frac{1+\sqrt{1+p}}{2}$ (VIII, 357).

14) $\int l(1+p\,Sin\,x.Cos\,x)\,dx = \pi\, l\frac{1+\sqrt{1+p}}{2}$ (IV, 435).

15) $\int l(1+p\,Cos^2 x)\,dx = \pi\, l\frac{1+\sqrt{1+p}}{2}$ (VIII, 357).

16) $\int l(1+p^2\,Tg^2 x)\,dx = \pi\, l(1+p)$ (VIII, 605).

17) $\int l(p^2+Tg^2 x)\,dx = \pi\, l(1+p)$ (VIII, 605).

18) $\int l(1+p^2\,Cot^2 x)\,dx = \pi\, l(1+p)$ (VIII, 605).

19) $\int l\{1+p^2\,Tg^2(q\,Tg\,x)\}\,dx = \pi\, l\left\{1+p\frac{e^q-e^{-q}}{e^q+e^{-q}}\right\}$ V. T. 421, N. 1.

20) $\int l\{1+p^2\,Cot^2(q\,Tg\,x)\}\,dx = \pi\, l\left\{1+p\frac{e^q+e^{-q}}{e^q-e^{-q}}\right\}$ V. T. 421, N. 2.

21) $\int l(Tg^2 x - Cot^2 x)^2\,dx = 3\pi\, l2$ V. T. 138, N. 17.

22) $\int l(\sqrt{Tg\,x}+\sqrt{Cot\,x})\,dx = \frac{\pi}{4}\, l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 137, N. 6.

23) $\int l(\sqrt{Tg\,x}-\sqrt{Cot\,x})^2\,dx = \frac{\pi}{2}\, l2 + 2\sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 137, N. 7.

24) $\int l(1+2p\,Sin\,x+p^2)\,dx = \sum_0^\infty \frac{1}{2n+1}\,\frac{2^{n/2}}{3^{n/2}}\left(\frac{2p}{1+p^2}\right)^{2n+1}$ $[p\leqq 1]$ V. T. 208, N. 29.
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25) $\int l\left\{1+2p\,Cos\left(q\,Tg\frac{x}{r}\right)+p^2\right\}dx=\pi\,l(1+pe^{-qr})\ [p^2\leqq 1], =\pi\,l(p+e^{-qr})\ [p^2\geqq 1]$

V. T. 421, N. 11.

26) $\int l\left(\frac{Cos\,2\,x}{Cos^2\,x}\right)^2 dx=\pi\,l2$ V. T. 136, N. 5.

27) $\int l\left(\frac{Sin\,x+Cos\,x}{Sin\,x-Cos\,x}\right)^2 dx=4\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 138, N. 21.

28) $\int l\,l\,Tg\,x.dx=\frac{\pi}{2}\,l\left\{\frac{\Gamma(\frac{3}{4})}{\Gamma(\frac{1}{4})}\sqrt{2\pi}\right\}$ V. T. 148, N. 1.

29) $\int l(Tg^p\,x+Cot^p\,x).l\,Tg\,x.dx=0$ (VIII, 273).

1) $\int l\,Cos\,x\,.\,Cos\,(p\,l\,Sin\,x).Tg\,x\,dx=\frac{1}{2p^2}+\frac{\pi}{2p}\,\frac{1+e^{p\pi}}{1-e^{p\pi}}$ V. T. 309, N. 25.

2) $\int (l\,Sin\,x)^2\,.\,Sin\,(p\,l\,Cos\,x)\,.\,Tg\,x\,dx=\infty$ V. T. 310, N. 16.

3) $\int l\,Sin\,x\,.\,(l\,Cos\,x)^2.Tg\,x\,dx=-\frac{1}{720}\pi^4$ V. T. 311, N. 7.

4) $\int l\,Sin\,x\,.\,(l\,Cos\,x)^4.Tg\,x\,dx=-\frac{1}{2520}\pi^6$ V. T. 311, N. 9.

5) $\int l\,Sin\,x\,.\,(l\,Cos\,x)^{2a}.Tg\,x\,dx=-\frac{1}{4}\,\frac{\pi^{2a+2}}{(a+1)(2a+1)}\mathrm{B}_{2a+1}$ V. T. 311, N. 13.

6) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right).\,Sin\,2\,x\,dx=\pm\pi$ V. T. 45, N. 25.

7) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right).\,Tg\,x\,dx=\pm\frac{1}{2}\pi^2$ V. T. 141, N. 13.

8) $\int l(p\,Tg\,x)\,.\,Sin\,(q\,Tg\,x)\,.\,Tg\,x\,dx=\frac{\pi}{4}e^{-q}\{2\,lp-Ei(q)\}-\frac{\pi}{4}e^q\,Ei(-q)$ V. T. 422, N. 1.

9) $\int l(p\,Tg\,x)\,.\,Cos\,(q\,Tg\,x)\,dx=\frac{\pi}{4q}e^{-q}\{2\,lp-Ei(q)\}+\frac{\pi}{4q}e^q\,Ei(-q)$ V. T. 422, N. 2.

10) $\int l(p\,Tg\,x)\,.\,Cos\,(q\,Cot\,x)\,dx=\frac{\pi}{4q}\{e^{-q}\,Ei(q)-e^q\,Ei(-q)\}+\frac{\pi}{4q}e^{-q}\,lp$ V. T. 422, N. 4.

11) $\int l(p\,Cot\,x).Sin\,(q\,Tg\,x).Tg\,x\,dx = \frac{\pi}{4}\{e^{-q}Ei(q)+e^{q}Ei(-q)\}+\frac{\pi}{2}e^{-q}lp$ V. T. 422, N. 3.

12) $\int l(p\,Cot\,x).Cos\,(q\,Tg\,x)\,dx = \frac{\pi}{4q}\{e^{-q}Ei(q)-e^{q}Ei(-q)\}+\frac{\pi}{2q}e^{-q}lp$ V. T. 422, N. 4.

13) $\int l(p\,Cot\,x).Cos\,(q\,Cot\,x)\,dx = \frac{\pi}{4q}e^{-q}\{2\,lp-Ei(q)\}+\frac{\pi}{4q}e^{q}Ei(-q)$ V. T. 422, N. 2.

14) $\int l(1+p\,Sin^2x).Sin^2x\,dx = \frac{\pi}{2}\left\{l\frac{1+\sqrt{1+p}}{2}-\frac{1}{2}\frac{1-\sqrt{1+p}}{1+\sqrt{1+p}}\right\}$ (VIII, 358).

15) $\int l(1+p\,Sin^2x).Cos^2x\,dx = \frac{\pi}{2}\left\{l\frac{1+\sqrt{1+p}}{2}+\frac{1}{2}\frac{1-\sqrt{1+p}}{1+\sqrt{1+p}}\right\}$ (VIII, 358).

16) $\int l(1+p\,Sin^2x).Cos\,2x\,dx = \frac{\pi}{2}\frac{1-\sqrt{1+p}}{1+\sqrt{1+p}}$ V. T. 308, N. 13 et T. 309, N. 14.

17) $\int l(1+p\,Cos^2x).Sin^2x\,dx = \frac{\pi}{2}\left\{l\frac{1+\sqrt{1+p}}{2}+\frac{1}{2}\frac{1-\sqrt{1+p}}{1+\sqrt{1+p}}\right\}$ (VIII, 358).

18) $\int l(1+p\,Cos^2x).Cos^2x\,dx = \frac{\pi}{2}\left\{l\frac{1+\sqrt{1+p}}{2}-\frac{1}{2}\frac{1-\sqrt{1+p}}{1+\sqrt{1+p}}\right\}$ (VIII, 358).

19) $\int l(1+p\,Cos^2x).Cos\,2x\,dx = \pi\frac{1-\sqrt{1+p}}{p}+\frac{1}{2}\pi$ V. T. 308, N. 15 et T. 309, N. 17.

20) $\int l(1+Cos^p x).Tg\,x\,dx = \frac{1}{12p}\pi^2$ V. T. 114, N. 30.

21) $\int l(1-Cos^p x).Tg\,x\,dx = -\frac{1}{6p}\pi^2$ V. T. 114, N. 31.

22) $\int l(1+2p\,Cos\,2x+p^2).Sin^2x\,dx = -\frac{1}{4}p\pi\,[p^2<1], = \frac{\pi}{4}lp^2-\frac{1}{4}p\pi\,[p^2>1]$ (VIII, 276).

23) $\int l(1+2p\,Cos\,2x+p^2).Cos^2x\,dx = \frac{1}{4}p\pi\,[p^2<1], = \frac{1}{4}p\pi+\frac{1}{4}\pi\,lp^2\,[p^2>1]$ (VIII, 276).

24) $\int l(r\,Tg\,x).Sin^{q-1}2x\,dx = 2^{q-1}lr\frac{\{\Gamma(\frac{1}{2}q)\}^2}{\Gamma(q)}$ (VIII, 273).

25) $\int Tg\,x.Sin\,(p\,l\,Sin\,x)\,dx = \frac{1}{2p}+\frac{\pi}{2}\frac{1+e^{p\pi}}{1-e^{p\pi}}$ V. T. 402, N. 10.

26) $\int Sin^{q-2}x\,.Tg\,x.Sin\,(p\,l\,Sin\,x)\,dx = -\sum_{1}^{\infty}\frac{p}{(2n+q)^2+p^2}$ V. T. 402, N. 11.

1) $\int l\,Sin\,x \frac{dx}{Cos\,x} = -\frac{1}{8}\pi^2$ V. T. 108, N. 11.

2) $\int l\,Sin\,x \frac{dx}{Cos\,2x} = -\frac{1}{8}\pi^2$ (VIII, 544).

3) $\int l\,Sin\,x \frac{dx}{Tg^{p-1}x\,.\,Sin\,2x} = \frac{1}{4}\frac{\pi}{p-1} Sec\frac{1}{2}p\pi\ [p<1]$ V. T. 45, N. 19.

4) $\int l\,Sin\,x \frac{Sin^{p-1}x}{Cos^{p+1}x}dx = -\frac{\pi}{2p} Cosec\frac{1}{2}p\pi \left[0<p<\frac{1}{2}\right]$ V. T. 42, N. 1.

5) $\int (l\,Sin\,x)^3 \frac{dx}{Cos\,x} = -\frac{1}{16}\pi^4$ V. T. 109, N. 13.

6) $\int (l\,Sin\,x)^5 \frac{dx}{Cos\,x} = -\frac{1}{8}\pi^6$ V. T. 109, N. 22.

7) $\int (l\,Sin\,x)^7 \frac{dx}{Cos\,x} = -\frac{17}{32}\pi^8$ V. T. 109, N. 30.

8) $\int (l\,Sin\,x)^{2a} \frac{dx}{Cos\,x} = \frac{2^{2a+1}-1}{2^{2a+2}} 1^{2a/1} \sum_1^\infty \frac{1}{n^{2a+1}}$ V. T. 110, N. 12.

9) $\int (l\,Sin\,x)^{2a-1} \frac{dx}{Cos\,x} = \frac{2^{2a}-1}{4a}\pi^{2a} B_{2a-1}$ V. T. 112, N. 9.

10) $\int (l\,Sin\,x)^{a-1} \frac{dx}{Cos\,x} = (-1)^{a-1} 1^{a-1/1} \sum_0^\infty \frac{1}{(2n+1)^a}$ (VIII, 577).

11) $\int (l\,Sin\,x)^{a-1} \frac{Sin^q x}{Cos\,x}dx = (-1)^{a-1} 1^{a-1/1} \sum_0^\infty \frac{1}{(2n+q+1)^a}$ (VIII, 577).

12) $\int l\,Sin\,x.Cos(p\,Tg\,x)\frac{dx}{Cos^2 x} = \pi\frac{e^{-p}-1}{2p}$ V. T. 51, N. 2.

13) $\int l\,Sin\,x.Sin(p\,Cot\,x)\frac{dx}{Sin^2 x} = \infty$ V. T. 43, N. 6.

14) $\int l\,Sin\,x.Sin(p\,Cot\,x)\frac{dx}{Sin\,2x} = -\frac{\pi}{4} Ei(-p)$ V. T. 411, N. 9.

15) $\int l\,Sin\,x.Cos(p\,Cot\,x)\frac{dx}{Sin^2 x} = \infty$ V. T. 43, N. 5.

16) $\int l\,Sin\,x.Cos(p\,l\,Cos\,x)\frac{dx}{Tg\,x} = \frac{1}{2p^2} + \frac{\pi}{2p}\frac{1+e^{p\pi}}{1-e^{p\pi}}$ V. T. 309, N. 25.

1) $\int l\,Cos\,x\,\frac{dx}{Sin\,x} = -\frac{1}{8}\pi^2$ V. T. 108, N. 11.

2) $\int l\,Cos\,x\,\frac{dx}{Cos\,2x} = \frac{1}{8}\pi^2$ (VIII, 544).

3) $\int l\,Cos\,x\,\frac{dx}{Tg\,x} = -\frac{1}{24}\pi^2$ V. T. 305, N. 11.

4) $\int l\,Cos\,x\,\frac{Tg^{p-1}x}{Sin\,2x}\,dx = \frac{\pi}{4(p-1)}\,Sec\,\frac{1}{2}p\pi\ [p<1]$ V. T. 45, N. 19.

5) $\int l\,Cos\,x\,\frac{Cos^{p-1}x}{Sin^{p+1}x}\,dx = -\frac{\pi}{2p}\,Cosec\,\frac{1}{2}p\pi\ \left[p<\frac{1}{2}\right]$ V. T. 42, N. 1.

6) $\int (l\,Cos\,x)^3\,\frac{dx}{Sin\,x} = -\frac{1}{16}\pi^4$ V. T. 109, N. 13.

7) $\int (l\,Cos\,x)^3\,\frac{dx}{Tg\,x} = -\frac{1}{240}\pi^4$ V. T. 109, N. 11.

8) $\int (l\,Cos\,x)^5\,\frac{dx}{Sin\,x} = -\frac{1}{8}\pi^6$ V. T. 109, N. 22.

9) $\int (l\,Cos\,x)^5\,\frac{dx}{Tg\,x} = -\frac{1}{504}\pi^6$ V. T. 109, N. 21.

10) $\int (l\,Cos\,x)^7\,\frac{dx}{Sin\,x} = -\frac{17}{32}\pi^8$ V. T. 109, N. 30.

11) $\int (l\,Cos\,x)^{2a-1}\,\frac{dx}{Sin\,x} = \frac{1-2^{2a}}{4a}\pi^{2a}\,B_{2a-1}$ V. T. 112, N. 9.

12) $\int (l\,Cos\,x)^{2a}\,\frac{dx}{Sin\,x} = \frac{2^{2a+1}-1}{2^{2a+1}}\,1^{2a/1}\sum_1^\infty \frac{1}{n^{2a+1}}$ V. T. 110, N. 12.

13) $\int (l\,Cos\,x)^{2a-1}\,\frac{dx}{Tg\,x} = -\frac{\pi^{2a}}{4a}\,B_{2a-1}$ V. T. 110, N. 5.

14) $\int (l\,Cos\,x)^{a-1}\,\frac{dx}{Tg\,x} = (-1)^{a-1}\,2^{-a}\,1^{a-1/1}\sum_0^\infty \frac{1}{(n+1)^a}$ V. T. 110, N. 6.

15) $\int (l\,Cos\,x)^{a-1}.Sin^{2q}x\,\frac{dx}{Tg\,x} = (-1)^{a-1}\,2^{-a}\,1^{a-1/1}\sum_0^\infty \frac{1}{(q+n+1)^a}$ V. T. 110, N. 7.

16) $\int (l\,Cos\,x)^{p-1}.Cos^{q-1}x\,\frac{dx}{Tg\,x} = -\,Cos\,p\pi.\Gamma(p)\sum_0^\infty \frac{1}{(q+2n+1)^p}$ V. T. 110, N. 13.

17) $\int l\,Cos\,x.\,Sin\,(p\,Tg\,x)\,\frac{dx}{Sin\,2x} = -\frac{\pi}{4}\,Ei(-p)$ V. T. 411, N. 9.

18) $\int l\,Cos\,x\,.Sin\,(p\,Tg\,x)\,\frac{dx}{Cos^2 x} = \infty$ V. T. 43, N. 6.

F. Log. en num. $(l\, Cos\, x)^a$; Circ. Dir. rat. en dén. mon. TABLE 311, suite. Lim. 0 et $\frac{\pi}{2}$.

19) $\int l\, Cos\, x \,.\, Cos\,(p\, Tg\, x)\, \frac{dx}{Cos^2 x} = \infty$ V. T. 43, N. 5.

20) $\int l\, Cos\, x \,.\, Cos\,(p\, Cot\, x)\, \frac{dx}{Sin^2 x} = -\frac{\pi}{2p}(1-e^{-q})$ V. T. 43, N. 18.

21) $\int (l\, Cos\, x)^2 .\, Sin\,(p\, l\, Sin\, x)\, \frac{dx}{Tg\, x} = \infty$ V. T. 310, N. 16.

F. Log. en num. $(l\, Tang\, x)^a$; Circ. Dir. rat. en dén. mon. TABLE 312. Lim. 0 et $\frac{\pi}{2}$.

1) $\int l\, Tg\, x\, \frac{dx}{Cos\, 2x} = -\frac{1}{4}\pi^2$ (VIII, 544).

2) $\int l\, Tg\, x\, \frac{Tg^p\, x}{Cos\, 2x}\, dx = -\left\{\frac{\pi}{2}\, Cosec\left(\frac{p+1}{2}\pi\right)\right\}^2$ $[p^2 < 1]$ V. T. 135, N. 8.

3) $\int l\, Tg\, x\, \frac{dx}{Cos\, 2x\,.\, Tg^p\, x} = -\left\{\frac{\pi}{2}\, Cosec\left(\frac{p+1}{2}\pi\right)\right\}^2$ $[p^2 < 1]$ V. T. 135, N. 8.

4) $\int l\, Tg\, x\, \frac{1 - Tg^p\, x}{Cos\, 2x}\, dx = \left(\frac{\pi}{2}\, Tg\, \frac{1}{2} p\pi\right)^2$ $[p^2 < 1]$ V. T. 135, N. 9.

5) $\int (l\, Tg\, x)^3\, \frac{dx}{Cos\, 2x} = -\frac{1}{8}\pi^4$ V. T. 290, N. 9.

6) $\int (l\, Tg\, x)^{2a-1}\, \frac{dx}{Cos\, 2x} = \frac{1-2^{2a}}{2a}\pi^{2a} B_{2a-1}$ V. T. 290, N. 17.

7) $\int (l\, Tg\, x)^{2a}\, \frac{dx}{Cos\, 2x} = 0$ V. T. 290, N. 18.

8) $\int l\,(p\, Tg\, x) .\, Sin\,(q\, Tg\, x)\, \frac{dx}{Sin\, 2x} = \frac{\pi}{4}\left\{l\frac{p}{q} - A\right\}$ V. T. 411, N. 1.

F. Log. en num. de fonction bin.; Circ. Dir. rat. en dén. mon. TABLE 313. Lim. 0 et $\frac{\pi}{2}$.

1) $\int l(1 + p\, Sin\, x)\, \frac{dx}{Sin\, x} = \frac{1}{8}\pi^2 - \frac{1}{2}(Arccos\, p)^2$ $[p^2 < 1]$ V. T. 313, N. 8.

2) $\int l(1 + Sin\, x)\, \frac{Cos\, x}{3 - Cos\, 2x}\, dx = \frac{\pi}{16}\, l\, 2$ V. T. 114, N. 3.

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3) $\int l(1+p\,Sin\,x)\,\frac{Cos^3 x}{(3-Cos\,2x)^2}\,dx = \frac{1}{8}\,\frac{1}{1+p^2}\left\{(1+p)^2\,l(1+p) - p\,l2 - \frac{1}{2}p^2\pi\right\}$

V. T. 114, N. 23.

4) $\int l(1+Sin^p x)\,\frac{dx}{Tg\,x} = \frac{1}{12p}\pi^2$ V. T. 114, N. 30.

5) $\int l(1-Sin^p x)\,\frac{dx}{Tg\,x} = -\frac{1}{6p}\pi^2$ V. T. 114, N. 31.

6) $\int l(1+p\sqrt{Sin\,2x})\,\frac{dx}{Sin\,x} = \frac{1}{4}\pi^2 - (Arccos\,p)^2$ $[p^2<1]$ (VIII, 423).

7) $\int l(1+p\sqrt{Sin\,2x})\,\frac{dx}{Cos\,x} = \frac{1}{4}\pi^2 - (Arccos\,p)^2$ $[p^2<1]$ (VIII, 423).

8) $\int l(1+p\,Cos\,x)\,\frac{dx}{Cos\,x} = \frac{1}{8}\pi^2 - \frac{1}{2}(Arccos\,p)^2$ $[p^2<1]$ (VIII, 582).

9) $\int l(1+Cos\,x)\,\frac{Sin\,x}{3+Cos\,2x}\,dx = \frac{\pi}{16}\,l2$ V. T. 114, N. 3.

10) $\int l(1+p\,Cos\,x)\,\frac{Sin^3 x}{(3+Cos\,2x)^2}\,dx = \frac{1}{8(1+p^2)}\left\{(1+p)^2\,l(1+p) - p\,l2 - \frac{1}{2}p^2\pi\right\}$

V. T. 114, N. 23.

11) $\int l(p^2\,Cos^2 x + q^2\,Sin^2 x)\,\frac{dx}{Cos^2 x} = \infty$ (VIII, 591).

12) $\int l(1+p^2\,Tg^2 x)\,\frac{dx}{Cos\,2x} = -\pi\,Arctg\,p$ (VIII, 360).

13) $\int l(p^2+Tg^2 x)\,\frac{dx}{Cos\,2x} = -\pi\,Arccot\,p$ (VIII, 360).

14) $\int l(1+p^2\,Cot^2 x)\,\frac{dx}{Cos\,2x} = \pi\,Arctg\,p$ (VIII, 360).

15) $\int l(p^2+Cot^2 x)\,\frac{dx}{Cos\,2x} = \pi\,Arccot\,p$ (VIII, 360).

16) $\int [l(1+p^2\,Tg^2 x)]^2\,\frac{dx}{Sin^2 x} = 4p\pi\,l2$ (VIII, 608).

17) $\int [l(1+p^2\,Cot^2 x)]^2\,\frac{dx}{Cos^2 x} = 4p\pi\,l2$ (VIII, 608).

1) $\int l(Sin\,x\,.\,Cos\,x)\,\frac{dx}{Cos\,2x} = 0$ (VIII, 544).

2) $\int l\,Tg^2\left(\frac{\pi}{4} \pm x\right)\frac{Tg^{p-1}x}{Sin\,2x}\,dx = \pm\frac{\pi}{1-p}\,Cot\,\frac{1}{2}p\pi$ V. T. 45, N. 27.

3) $\int l\,Tg^2\left(\frac{\pi}{4} \pm x\right)\frac{dx}{Tg\,x} = \pm\frac{1}{2}\pi^2$ V. T. 141, N. 13.

4) $\int l\,Tg^2\left(\frac{\pi}{4} \pm x\right)\frac{dx}{Tg^{p-1}x.Sin\,2x} = \pm\frac{\pi}{1-p}\,Cot\,\frac{1}{2}p\pi$ V. T. 45, N. 29.

5) $\int l\,Sin\,(p\,Tg\,x)\,\frac{dx}{Cos\,2x} = \frac{1}{2}p\pi - \frac{1}{4}\pi^2$ V. T. 418, N. 1.

6) $\int l\,Cos\,(p\,Tg\,x)\,\frac{dx}{Cos\,2x} = \frac{1}{2}p\pi$ V. T. 418, N. 2.

7) $\int l\,Tg\,(p\,Tg\,x)\,\frac{dx}{Cos\,2x} = -\frac{1}{4}\pi^2$ V. T. 418, N. 3.

8) $\int l(p\,Tg\,x)\,\frac{dx}{Sin^{q-1}\,2x} = 2^{2q-1}\,lp\,\frac{\{\Gamma(\frac{1}{2}q)\}^2}{\Gamma(q)}$ V. T. 140, N. 6.

9) $\int l(p\,Tg\,x).Sin\,(q\,Cot\,x)\,\frac{dx}{Tg\,x} = \frac{\pi}{4}\,\{e^{-q}\,Ei(q) + e^{q}\,Ei(-q)\} + \frac{\pi}{2}\,e^{-q}\,lp$ V. T. 422, N. 3.

10) $\int l(p\,Tg\,x).Sin\,(q\,Cot\,x)\frac{Cot\,x\,dx}{Cos\,2x} = \frac{\pi}{2}\left\{Cos\,q.lp + Ci\,(q).Cos\,q + Si\,(q).Sin\,q - \frac{\pi}{2}\,Sin\,q\right\}$ V. T. 422, N. 5.

11) $\int l(p\,Cot\,x).Sin\,(q\,Cot\,x)\,\frac{dx}{Tg\,x} = \frac{\pi}{4}\left\{e^{-q}\,\{2\,lp - Ei\,(p)\} - \frac{\pi}{4}\,e^{q}\,Ei(-q)\right\}$ V. T. 422, N. 1.

12) $\int l(p\,Tg\,x).\,Cos\,(q\,Cot\,x)\,\frac{dx}{Cos\,2x} = -\frac{\pi}{2}\left\{-Sin\,q\,.\,lp + Si\,(q)\,.\,Cos\,q + \frac{\pi}{2}\,Cos\,q\right\}$ V. T. 422, N. 6.

13) $\int l\,Tg^2\left(\frac{\pi}{4} \pm x\right).Sin\,(q\,Cot\,x)\frac{dx}{Sin^2\,x} = \pm\frac{2\pi}{q}\,Sin\,q$ V. T. 51, N. 9.

14) $\int l\,Tg^2\left(\frac{\pi}{4} \pm x\right).Sin\,(q\,Tg\,x)\frac{dx}{Cos^2\,x} = \pm\frac{2\pi}{q}\,Sin\,q$ V. T. 52, N. 6.

15) $\int l\,Tg^2\left(\frac{\pi}{4} \pm x\right).Cos\,(q\,Tg\,x)\frac{dx}{Cos^2\,x} = \pm\frac{2}{q}\,\{Si\,(q)\,.\,Cos\,q - Ci\,(q)\,.\,Sin\,q\}$ V. T. 51, N. 3.

16) $\int l\,Tg^2\left(\frac{\pi}{4} \pm x\right).Tg\,(q\,Tg\,x)\,\frac{dx}{Cos^2\,x} = \pm\,2\pi$ V. T. 314, N. 6.

17) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right).Cot(q\,Tg\,x)\frac{dx}{Cos^2 x}=\pm\frac{\pi-2q}{q}\pi$ V. T. 314, N. 5.

18) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right).Cosec(q\,Tg\,x)\frac{dx}{Cos^2 x}=\pm\frac{1}{q}\pi^2$ V. T. 314, N. 7.

19) $\int Sin(p\,l\,Sin\,x)\frac{dx}{Cos\,x}=\frac{\pi}{4}\,\frac{1-e^{p\pi}}{1+e^{p\pi}}$ V. T. 402, N. 9.

20) $\int Sin(p\,l\,Cos\,x)\frac{dx}{Tg\,x}=\frac{\pi}{2}\,\frac{1+e^{p\pi}}{1-e^{p\pi}}+\frac{1}{2p}$ V. T. 402, N. 10.

21) $\int Sin(p\,l\,Sin\,x)\frac{Tg\,x}{Sin^q x}dx=-\sum_1^\infty\frac{p}{(2n-q)^2+p^2}$ V. T. 404, N. 5.

22) $\int Sin(p\,l\,Cos\,x)\frac{Cos^q x}{Tg\,x}dx=-\sum_1^\infty\frac{p}{(2n+q)^2+p^2}$ V. T. 402, N. 11.

F. Log. en num. de fonct. fract.; Circ. Dir. rat. en dén. mon. TABLE 315. Lim. 0 et $\frac{\pi}{2}$.

1) $\int l\left(\frac{Cos\,2x}{Cos^2 x}\right)^2\frac{Tg^{p-2}x}{Sin\,2x}dx=\frac{\pi}{p-2}Cot\frac{1}{2}p\pi$ V. T. 134, N. 4.

2) $\int l\left(\frac{Cos\,2x}{Sin^2 x}\right)^2\frac{dx}{Tg^{p-2}x.Sin\,2x}=\frac{\pi}{p-2}Cot\frac{1}{2}p\pi$ V. T. 134, N. 13.

3) $\int l\left(\frac{1+Sin\,x}{1-Sin\,x}\right)\frac{dx}{Sin\,x}=\frac{1}{2}\pi^2$ (VIII, 546).

4) $\int l\left(\frac{1+p\,Sin\,x}{1-p\,Sin\,x}\right)\frac{dx}{Sin\,x}=\pi\,Arcsin\,p\;[p^2\leqq 1]$ V. T. 315, N. 12.

5) $\int l\left(\frac{1+p\,Sin\,ax}{1-p\,Sin\,ax}\right)\frac{dx}{Sin\,ax}=\pi\,Arcsin\,p$ V. T. 315, N. 4.

6) $\int l\left(\frac{1+Sin\,2x}{1+Cos\,\lambda.Sin\,2x}\right)\frac{Tg^p x}{Sin\,2x}dx=\frac{\pi}{p}Cosec\,p\pi.(1-Cos\,p\lambda)\;[p<1]$ V. T. 134, N. 17.

7) $\int l\left(\frac{1+Sin\,2x}{1+Cos\,\lambda.Sin\,2x}\right)\frac{dx}{Tg^p x.Sin\,2x}=\frac{\pi}{p}Cosec\,p\pi.(1-Cos\,p\lambda)\;[p<1]$ V. T. 134, N. 17.

8) $\int\left\{l\left(\frac{1+Sin\,x}{1-Sin\,x}\right)-2\,Sin\,x\right\}\frac{dx}{Sin^3 x}=\frac{1}{4}\pi^2$ (IV, 444).

9) $\int l\left(\frac{1+p\sqrt{Sin\,2x}}{1-p\sqrt{Sin\,2x}}\right)\frac{dx}{Sin\,x}=2\pi\,Arcsin\,p$ (VIII, 423).

10) $\int l\left(\frac{1+p\sqrt{Sin\,2x}}{1-p\sqrt{Sin\,2x}}\right)\frac{dx}{Cos\,x}=2\pi\,Arcsin\,p$ (VIII, 423).

11) $\int l\left(\frac{2\,Cos\,x}{1+Cos\,x}\right)\frac{dx}{Sin\,x}=-\frac{1}{12}\pi^2$ V. T. 114, N. 14.

12) $\int l\left(\frac{1+p\,Cos\,x}{1-p\,Cos\,x}\right)\frac{dx}{Cos\,x}=\pi\,Arcsin\,p\;[p^2\leqq 1]$ (VIII, 582).

13) $\int l\left(\frac{1+p\,Cos\,ax}{1-p\,Cos\,ax}\right)\frac{dx}{Cos\,ax}=\pi\,Arcsin\,p\;[p^2\leqq 1]$ V. T. 315, N. 5.

14) $\int l\left(\frac{(Sin\,x+Cos\,x)^2}{1+Cos\,\lambda.\,Sin\,2x}\right)\frac{dx}{Sin\,2x}=\frac{1}{2}\lambda^2\;[0<\lambda<\pi]$ V. T. 134, N. 15.

15) $\int l\left(\frac{1+Tg\,x}{1-Tg\,x}\right)^2\frac{dx}{Tg\,x}=\frac{1}{2}\pi^2$ (VIII, 286).

16) $\int l\left(\frac{1+p\,Tg\,x}{1-p\,Tg\,x}\right)^2\frac{dx}{Tg\,x}=\pi\,Arcsin\,p\;[p^2\leqq 1]$ V. T. 315, N. 15.

17) $\int l\left(\frac{1+p\,Tg\,ax}{1-p\,Tg\,ax}\right)^2\frac{dx}{Tg\,ax}=\pi\,Arcsin\,p$ V. T. 315, N. 16.

18) $\int l\left(\frac{1+Sin\,(p\,Tg\,x)}{1-Sin\,(p\,Tg\,x)}\right)\frac{dx}{Sin\,2x}=\frac{1}{4}\pi^2$ V. T. 416, N. 1.

19) $\int l\left(\frac{1+Tg\,(p\,Tg\,x)}{1-Tg\,(p\,Tg\,x)}\right)^2\frac{dx}{Sin\,2x}=\frac{1}{4}\pi^2$ V. T. 416, N. 2.

F. Log. en num. Produits; Circ. Dir. rat. en dén. mon. TABLE 316. Lim. 0 et $\frac{\pi}{2}$.

1) $\int (l\,Sin\,x)^2.l\,Cos\,x\frac{dx}{Tg\,x}=-\frac{1}{720}\pi^4$ V. T. 305, N. 20.

2) $\int (l\,Sin\,x)^4.l\,Cos\,x\frac{dx}{Tg\,x}=-\frac{1}{2520}\pi^6$ V. T. 305, N. 21.

3) $\int (l\,Sin\,x)^{2a}.l\,Cos\,x\frac{dx}{Tg\,x}=-\frac{\pi^{2a+2}}{4(a+1)(2a+1)}B_{2a+1}$ V. T. 305, N. 23.

4) $\int (l\,Tg\,x)^{2a}.l\,Tg^2\left(\frac{\pi}{4}\pm x\right)\frac{dx}{Sin\,2x}=\pm\frac{1-2^{2a+2}}{(a+1)(2a+1)}\pi^{2a+2}B_{2a+1}$ V. T. 312, N. 6.

5) $\int (l\,Tg\,x)^{2a+1}.l\,Tg^2\left(\frac{\pi}{4}\pm x\right)\frac{dx}{Sin\,2x}=0$ V. T. 312, N. 7.

6) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right)\frac{p\,l\,Tg\,x+1}{Sin\,2x}\,Tg^p\,x\,dx = \pm\frac{1}{2}\pi^2\,Cosec^2\left(\frac{p+1}{2}\pi\right)$ $[p^2<1]$ V. T. 312, N. 2.

7) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right)\frac{p\,l\,Tg\,x-1}{Tg^p\,x\,.\,Sin\,2x}\,dx = \mp\frac{1}{2}\pi^2\,Cosec^2\left(\frac{p+1}{2}\pi\right)$ $[p^2<1]$ V. T. 312, N. 3.

8) $\int l\,Tg\,x.l\left(\frac{1+p\,Sin\,2x}{1-p\,Sin\,2x}\right)\frac{dx}{Sin\,2x} = 0$ $[p^2 \leqq 1]$ V. T. 134, N. 25.

9) $\int l\,Tg\,x\,.\,l(p^2\,Sin^2 x+Cos^2 x)\frac{dx}{Sin^2 x} = \pi(p-1)-p\pi\,lp$ V. T. 134, N. 24.

10) $\int l\,Tg\,x\,.\,l(1+p\,Tg^2\,x)\frac{dx}{Sin^2\,x} = p\pi(1-lp)$ (VIII, 609).

11) $\int l\,Tg\,x\,.\,l(Sin^2 x+p^2\,Cos^2\,x)\frac{dx}{Cos^2\,x} = \pi(1-p)+p\pi\,lp$ V. T. 134, N. 24.

12) $\int l\,Tg\,x\,.\,l(1+p\,Cot^2\,x)\frac{dx}{Cos^2\,x} = p\pi(lp-1)$ (VIII, 609).

13) $\int l(1+p^2\,Tg^2\,x)\,.\,l(1+q^2\,Cot^2\,x)\frac{dx}{Sin^2 x} = 2\pi\frac{pq+1}{q}\,l(1+pq)-2p\pi$ (VIII, 608).

14) $\int l(1+p^2\,Tg^2\,x)\,.\,l(1+q^2\,Cot^2\,x)\frac{dx}{Cos^2 x} = 2\pi\frac{pq+1}{p}\,l(1+pq)-2q\pi$ (VIII, 609).

15) $\int l(1+p^2\,Tg^2\,x)\,.\,l(1+q^2\,Cot^2\,x)\frac{dx}{Sin^2\,2x} = \frac{p+q}{2}\pi\left\{\frac{pq+1}{pq}\,l(1+pq)-1\right\}$
V. T. 316, N. 13, 14.

16) $\int l(1+p^2\,Tg^2\,x)\,.\,l(1+q^2\,Cot^2\,x)\frac{Cos\,2x}{Sin^2\,2x}\,dx = \frac{p-q}{2}\pi\left\{\frac{pq+1}{pq}\,l(1+pq)-1\right\}$
V. T. 316, N. 13, 14.

F. Log. en num. de Circ. Dir. mon.; Circ. Dir. rat. en dén. bin. TABLE 317. Lim. 0 et $\frac{\pi}{2}$.

1) $\int l\,Sin\,x\frac{Sin^{p-1}\,x\,.\,Cos\,x}{1+Sin^p\,x}\,dx = -\frac{1}{12p^2}\pi^2$ V. T. 313, N. 4.

2) $\int l\,Sin\,x\frac{Sin^{p-1}\,x\,.\,Cos\,x}{1-Sin^p\,x}\,dx = -\frac{1}{6p^2}\pi^2$ V. T. 313, N. 5.

3) $\int l\,Sin\,x\frac{Cot\,x}{Sin^p\,x-Cosec^p\,x}\,dx = \frac{\pi^2}{4p^2}$ V. T. 317, N. 1, 2.

4) $\int l\,Sin\,x\frac{dx}{p^2\,Sin^2 x+q^2\,Cos^2\,x} = \frac{\pi}{2pq}\,l\frac{q}{p+q}$ (VIII, 274).

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5) $\int l\,Sin\,x \frac{1+Cos^2\lambda . Sin^2 x}{(Sin^2\lambda . Sec\,x + Cos^2\lambda . Cos\,x)^2} \frac{dx}{Cos\,x} = Sec\,\lambda . l\,Tg \frac{1}{2}\lambda$ V. T. 47, N. 12.

6) $\int l\,Sin\,x \frac{Sin\,x . Tg\,x}{1+Sin^4 x} dx = -\frac{\pi^2}{16(2+\sqrt{2})}$ V. T. 112, N. 21.

7) $\int l\,Sin\,2x \frac{dx}{p^2 Sin^2 x + q^2 Cos^2 x} = \frac{\pi}{pq} l \frac{\sqrt{2pq}}{p+q}$ (VIII, 274*).

8) $\int l\,Cos\,x \frac{Cos^{p-1} x . Sin\,x}{1+Cos^p x} dx = -\frac{1}{12p^2}\pi^2$ V. T. 309, N. 20.

9) $\int l\,Cos\,x \frac{Cos^{p-1} x . Sin\,x}{1-Cos^p x} dx = -\frac{1}{3p^2}\pi^2$ V. T. 309, N. 21.

10) $\int l\,Cos\,x \frac{dx}{p^2 Sin^2 x + q^2 Cos^2 x} = \frac{\pi}{2pq} l \frac{p}{p+q}$ (VIII, 274).

11) $\int l\,Cos\,x \frac{Tg\,x}{1+Sec^p x} dx = -\frac{1}{12}\left(\frac{\pi}{p}\right)^2$ V. T. 309, N. 20.

12) $\int l\,Cos\,x \frac{Tg\,x}{1-Sec^p x} dx = \frac{1}{6}\left(\frac{\pi}{p}\right)^2$ V. T. 309, N. 21.

13) $\int l\,Cos\,x \frac{Tg\,x}{Cos^p x - Sec^p x} dx = \left(\frac{\pi}{2p}\right)^2$ V. T. 317, N. 11, 12.

14) $\int l\,Tg\,x \frac{dx}{p^2 Sin^2 x + q^2 Cos^2 x} = \frac{\pi}{2pq} l \frac{q}{p}$ (VIII, 274).

15) $\int l\,Tg\,x \frac{Sin^2 x}{p^2 Sin^2 x + q^2 Cos^2 x} dx = \frac{q\pi}{2p(p^2-q^2)} l \frac{p}{q}$ V. T. 307, N. 1 et T. 317, N. 14.

16) $\int l\,Tg\,x \frac{Cos^2 x}{p^2 Sin^2 x + q^2 Cos^2 x} dx = \frac{p\pi}{2q(p^2-q^2)} l \frac{q}{p}$ V. T. 307, N. 1 et T. 317, N. 14.

17) $\int l\,Tg\,x \frac{Cos\,2x}{p^2 Sin^2 x + q^2 Cos^2 x} dx = \frac{\pi}{2q(p-q)} l \frac{q}{p}$ V. T. 317, N. 15, 16.

18) $\int (l\,Tg\,x)^2 \frac{dx}{Sin^4 x + Cos^4 x} = \frac{3}{32}\pi^3 \sqrt{2}$ (VIII, 568).

19) $\int l\,Tg^2\left(\frac{\pi}{4} \pm x\right) \frac{Sin\,2x}{1+p\,Cos\,2x} dx = \pm\frac{\pi}{p} Arcsin\,p\ [p^2 \leqq 1]$ V. T. 331, N. 1.

20) $\int l\,Tg^2\left(\frac{\pi}{4} \pm x\right) \frac{Cos\,2x}{Sin^2 x + p^2 Cos^2 x} dx = \pm\pi\left(Arccot\,p - \frac{1}{p^2} Arctg\,p\right)$ (VIII, 600).

21) $\int l\,Tg^2\left(\frac{\pi}{4} \pm x\right) \frac{Cos\,2x}{p^2 Sin^2 x + Cos^2 x} dx = \mp\pi\left(Arccot\,p - \frac{1}{p^2} Arctg\,p\right)$ (VIII, 600).

22) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right)\frac{Tg\,x}{Sin^2 x+p^2 Cos^2 x}dx=\pm 2\pi\,Arccot p$ (VIII, 600).

23) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right)\frac{Tg\,x}{p^2 Sin^2 x+Cos^2 x}dx=\pm\frac{2\pi}{p^2}Arctg p$ (VIII, 599).

24) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right)\frac{Cot\,x}{Sin^2 x+p^2 Cos^2 x}dx=\pm\frac{2\pi}{p^2}Arctg p$ (VIII, 599).

25) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right)\frac{Cot\,x}{p^2 Sin^2 x+Cos^2 x}dx=\pm 2\pi\,Arccot p$ (VIII, 599).

26) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right)\frac{Sin\,4x}{(1-p)^2+4p\,Sin^2 2x}dx=0\;[p<1]$ V. T. 331, N. 4.

27) $\int l\,l\,Tg\,x\frac{dx}{2+Sin\,2x}=\frac{\pi}{2\sqrt{3}}\,l\left(\frac{\Gamma(\frac{2}{3})}{\Gamma(\frac{1}{3})}\sqrt[3]{2\pi}\right)$ V. T. 148, N. 2.

F. Log. en num. de Circ. Dir. bin.; Circ. Dir. rat. en dén. bin. TABLE 318. Lim. 0 et $\frac{\pi}{2}$.

1) $\int l(1+p^2 Tg^2 x)\frac{dx}{q^2 Sin^2 x+r^2 Cos^2 x}=\frac{\pi}{qr}\,l\frac{q+pr}{q}$ (VIII, 418).

2) $\int l(p^2+Tg^2 x)\frac{dx}{q^2 Sin^2 x+r^2 Cos^2 x}=\frac{\pi}{qr}\,l\frac{r+pq}{q}$ (VIII, 605).

3) $\int l(1+p^2 Cot^2 x)\frac{dx}{q^2 Sin^2 x+r^2 Cos^2 x}=\frac{\pi}{qr}\,l\frac{r+pq}{r}$ (VIII, 418).

4) $\int l(p^2+Cot^2 x)\frac{dx}{q^2 Sin^2 x+r^2 Cos^2 x}=\frac{\pi}{qr}\,l\frac{q+pr}{q}$ (VIII, 605*).

5) $\int l\left(\frac{1-Cos\,\mu.Sin\,x}{1+Cos\,\mu.Sin\,x}\right)\frac{Sin\,x}{1-Cos^2\lambda.Sin^2 x}dx=2\pi\,Cosec\,2\lambda.\,l\left\{Sin\left\{\frac{1}{2}(\mu+\lambda)\right\}.Sec\left\{\frac{1}{2}(\mu-\lambda)\right\}\right\}$ V. T. 122, N. 8*.

6) $\int l\left(\frac{1-q\,Sin\,x}{1+q\,Sin\,x}\right)\frac{Sin\,x}{1-p\,Sin^2 x}dx=\frac{\pi}{\sqrt{p(1-p)}}\,l\frac{q\sqrt{p}-\{1-\sqrt{1-p}\}\{1-\sqrt{1-q^2}\}}{q\sqrt{p}+\{1-\sqrt{1-p}\}\{1-\sqrt{1-q^2}\}}$ V. T. 122, N. 8.

7) $\int l\left(\frac{1-Cothp^2\lambda.Sin^2 x}{1+Cothp^2\lambda.Sin^2 x}\right)\frac{Cos\,x}{1-Coshp^2\lambda.Cos^2 x}dx=\frac{2\lambda\,l\,Sinhp\,\lambda}{Sinhp\,\lambda.Coshp\,\lambda}$ V. T. 122, N. 8*.

8) $\int l\left(\frac{1+Cos\,\mu.Cos\,x}{1-Cos\,\mu.Cos\,x}\right)\frac{dx}{1+Cos\,\lambda.Cos\,x}=2\pi\,Cosec\,\lambda.\,l\left\{Cos\left(\frac{\pi}{4}-\frac{1}{2}\lambda\right).Sec\left\{\frac{1}{2}(\lambda-\mu)\right\}\right\}$ (IV, 448).

9) $\int l\left(\frac{1-Cos\lambda.Cos x}{1+Cos\lambda.Cos x}\right)\frac{Cos x}{1-Cos^2\lambda.Cos^2 x}dx = 2\pi\,Cosec\,2\lambda.l\,Sin\lambda$ (IV, 448).

10) $\int l\left(\frac{1+p\,Cos x}{1-p\,Cos x}\right)\frac{Cos x}{1-q\,Cos^2 x}dx = -\frac{\pi}{\sqrt{q(1-q)}}l\frac{p\sqrt{q}+\{1+\sqrt{1-q}\}\{1-\sqrt{1-p^2}\}}{p\sqrt{q}-\{1+\sqrt{1-q}\}\{1-\sqrt{1-p^2}\}}$

V. T. 122, N. 8.

11) $\int l\left(\frac{1+Coshp\lambda.Cos x}{1-Coshp\lambda.Cos x}\right)\frac{Cos x}{1-Coshp^2\lambda.Cos^2 x}dx = \frac{-\pi\,l\,Sinhp\lambda}{Sinhp\lambda.Coshp\lambda}$ (IV, 449).

12) $\int l\left(\frac{1+Cos\mu.Cos x}{1-Cos\mu.Cos x}\right)\frac{dx}{1-Cos^2\lambda.Cos^2 x} = \pi\,Cosec\lambda.l\frac{1+Sin\lambda}{Sin\lambda+Sin\mu}$ (IV, 449).

13) $\int l\left(\frac{1+Cos\mu.Cos x}{1-Cos\mu.Cos x}\right)\frac{Cos x}{1-Cos^2\lambda.Cos^2 x}dx = 2\pi\,Cosec\,2\lambda.l\left\{Cos\left\{\frac{1}{2}(\lambda-\mu)\right\}.Cosec\left\{\frac{1}{2}(\lambda+\mu)\right\}\right\}$

V. T. 122, N. 8*.

14) $\int l\left(\frac{1+Coshp\mu.Cos x}{1-Coshp\mu.Cos x}\right)\frac{Cos x}{1-Cos^2\lambda.Cos^2 x}dx = 2\pi\,Cosec\,2\lambda.l\left\{Cothp\left[\frac{1}{2}Arccoshp\left(\frac{Coshp\mu}{Cos\lambda}\right)\right].\right.$

$\left.Tghp\left[\frac{1}{2}Arccoshp\left(\frac{Tg\lambda}{Tghp\mu}\right)\right]\right\}$ (IV, 449).

F. Log. en num.; Circ. Dir. rat. en dén. puiss. de bin. TABLE 319. Lim. 0 et $\frac{\pi}{2}$.

1) $\int l\,Sin x\frac{dx}{(Sin x\pm p\,Cos x)^2} = \frac{1}{p(1+p^2)}\left\{\pm lp-\frac{1}{2}p\pi\right\}$ V. T. 47, N. 2.

2) $\int l\,Sin x\frac{q^2Sin^2 x-p^2Cos^2 x}{(p^2Cos^2 x+q^2Sin^2 x)^2}dx = \frac{\pi q}{2p(p+q)}$ V. T. 47, N. 13.

3) $\int l\,Sin x\frac{Sin\,2x}{(p\,Sin^2 x+q\,Cos^2 x)^2}dx = \frac{1}{2q(p-q)}l\frac{p}{q}$ V. T. 47, N. 17.

4) $\int l\left(\frac{1}{2}Sin\,2x\right)\frac{dx}{(Sin x\pm p\,Cos x)^2} = -\frac{\pi}{1+q^2}\pm\frac{1-q^2}{1+q^2}\frac{1}{q}lq$ V. T. 47, N. 1, 2.

5) $\int l\left(\frac{1}{2}Sin\,2x\right)\frac{Sin\,2x}{(p\,Sin^2 x+q\,Cos^2 x)^2}dx = \frac{1}{2pq}\frac{p+q}{p-q}l\frac{p}{q}$ V. T. 319, N. 2, 7.

6) $\int l\,Cos x\frac{dx}{(Sin x\pm p\,Cos x)^2} = \frac{p}{1+p^2}\left\{\mp lp-\frac{\pi}{2p}\right\}$ V. T. 47, N. 1.

7) $\int l\,Sin x\frac{Sin\,2x}{(p\,Sin^2 x+q\,Cos^2 x)^2}dx = \frac{1}{2p(p-q)}l\frac{p}{q}$ V. T. 47, N. 17.

8) $\int l\,Cos\,x\,\frac{p^2\,Sin^2 x - q^2\,Cos^2 x}{(p^2\,Sin^2 x + q^2\,Cos^2 x)^2}\,dx = \frac{-\pi q}{2p(p+q)}$ V. T. 47, N. 13.

9) $\int l\,Cos\,x\,\frac{Cos^p x - Sec^p x}{(Cos^p x + Sec^p x)^2}\,Tg\,x\,dx = \frac{\pi}{4p^2}$ V. T. 47, N. 28.

10) $\int l\,Cos\,x\,\frac{Cos^p x}{(1-Cos\,x)^{p+1}}\,Tg\,x\,dx = -\frac{\pi}{p}\,Cosec\,p\pi$ V. T. 48, N. 6.

11) $\int l\,Tg\,x\,\frac{dx}{(p\,Sin\,x \pm Cos\,x)^2} = \mp\frac{1}{p}\,lp$ V. T. 139, N. 1.

12) $\int l\,Tg\,x\,\frac{dx}{(Sin\,x \pm p\,Cos\,x)^2} = \pm\frac{1}{p}\,lp$ V. T. 47, N. 1, 2.

13) $\int l\,Tg\,x\,\frac{Sin\,2x}{(p\,Sin^2 x + q\,Cos^2 x)^2}\,dx = \frac{1}{2pq}\,l\frac{q}{p}$ V. T. 47, N. 17.

14) $\int (l\,Tg\,x)^2\,\frac{dx}{(Sin\,x - Cos\,x)^2} = \frac{2}{3}\pi^2$ V. T. 139, N. 4.

15) $\int l\,Tg^2\left(\frac{\pi}{4} \pm x\right)\frac{Sin\,2x}{(p\,Sin^2 x + q\,Cos^2 x)^2}\,dx = \pm\frac{2}{p+q}\,\frac{\pi}{\sqrt{pq}}$ V. T. 47, N. 16.

F. Log. en num.; Circ. Dir. rat. en dén. composé. TABLE 320. Lim. 0 et $\frac{\pi}{2}$.

1) $\int l\,Sin\,x\,\frac{Sin^p x}{1+Sin^p x}\,\frac{dx}{Tg\,x} = -\frac{1}{12p^2}\pi^2$ V. T. 313, N. 4.

2) $\int l\,Sin\,x\,\frac{Sin^p x}{1-Sin^p x}\,\frac{dx}{Tg\,x} = -\frac{1}{6p^2}\pi^2$ V. T. 313, N. 5.

3) $\int l\,Sin\,x\,\frac{1}{Sin^p x - Cosec^p x}\,\frac{dx}{Tg\,x} = \left(\frac{\pi}{2p}\right)^2$ V. T. 320, N. 1, 2.

4) $\int l\,Sin\,x\,\frac{Sin^p x - Cosec^p x}{(Sin^p x + Cosec^p x)^2}\,\frac{dx}{Tg\,x} = \frac{\pi}{4p^2}$ V. T. 49, N. 14.

5) $\int l\,Sin\,x\,\frac{Sin^p x}{(1-Sin\,x)^{p+1}}\,\frac{dx}{Tg\,x} = -\frac{\pi}{p}\,Cosec\,p\pi$ V. T. 49, N. 27.

6) $\int l\,Cos\,x\,\frac{Cos\,x}{1+Cos^4 x}\,\frac{dx}{Tg\,x} = -\frac{\pi^2}{16(2+\sqrt{2})}$ V. T. 112, N. 21.

7) $\int l\,Tg\,x\,\frac{Tg^p x}{Sin\,x + Cos\,x}\,\frac{dx}{Sin\,x} = -\pi^2\,Cos\,p\pi\,.\,Cosec^2\,p\pi\ [p<1]$ V. T. 312, N. 2 et T. 320, N. 8. Page 455.

8) $\int l\,Tg\,x \frac{Tg^p x}{Sin\,x - Cos\,x} \frac{dx}{Sin\,x} = \pi^2\,Cosec^2\,p\pi$ $[p<1]$ V. T. 140, N. 1.

9) $\int l\,Tg\,x \frac{1}{Sin\,x + Cos\,x} \frac{dx}{Cos\,x\,.\,Tg^p\,x} = -\pi^2\,Cos\,p\pi\,.\,Cosec^2\,p\pi$ V. T. 312, N. 3 et T. 320, N. 10.

10) $\int l\,Tg\,x \frac{1}{Sin\,x - Cos\,x} \frac{dx}{Cos\,x\,.\,Tg^p\,x} = \pi^2\,Cosec^2\,p\pi$ $[p<1]$ V. T. 140, N. 2.

11) $\int l\,Tg\,x \frac{Tg^q x - Cot^q x}{Tg^p x + Cot^p x} \frac{dx}{Sin\,2x} = 0$ V. T. 292, N. 8.

12) $\int l\,Tg\,x \frac{Tg^q x + Cot^q x}{Tg^p x - Cot^p x} \frac{dx}{Sin\,2x} = 0$ V. T. 292, N. 9.

13) $\int l\,Tg\,x \frac{Cos\,2x}{1 + Sin\,2x} \frac{dx}{1 + Cos\,\lambda\,.\,Sin\,2x} = \frac{\lambda^2}{Cos\,\lambda - 1}$ V. T. 331, N. 2.

14) $\int l\,Tg^2\left(\frac{\pi}{4} \pm x\right) \frac{Sin\,2x}{(p^2\,Tg^2 x + q^2)^2} \frac{dx}{Cos^4 x} = \pm \frac{\pi}{pq} \frac{2}{p^2 + q^2}$ V. T. 49, N. 4.

15) $\int l\,Tg^2\left(\frac{\pi}{4} \pm x\right) \frac{1}{Sin^2 x + p\,Cos^2 x} \frac{dx}{Tg\,x} = \pm \frac{2\pi}{p^2}\,Arctg\,p$ V. T. 313, N. 14.

16) $\int l\,Tg^2\left(\frac{\pi}{4} \pm x\right) \frac{1}{Sin^2 x + p^2\,Cos^2 x} \frac{dx}{Sin\,2x} = \pm \pi\left(Arccot\,p + \frac{1}{p^2}\,Arctg\,p\right)$ (VIII, 600).

17) $\int l\,Tg^2\left(\frac{\pi}{4} \pm x\right) \frac{1}{p^2\,Sin^2 x + Cos^2 x} \frac{dx}{Sin\,2x} = \pm \pi\left(Arccot\,p + \frac{1}{p^2}\,Arctg\,p\right)$ (VIII, 600).

18) $\int l(1 + q^2\,Tg^2 x) \frac{1}{p^2\,Sin^2 x + r^2\,Cos^2 x} \frac{dx}{s^2\,Sin^2 x + t^2\,Cos^2 x} = \frac{\pi}{p^2 t^2 - s^2 r^2}$
$\left\{\frac{p^2 - r^2}{pr}\,l\left(1 + \frac{qr}{p}\right) + \frac{t^2 - s^2}{st}\,l\left(1 + \frac{qt}{s}\right)\right\}$ V. T. 320, N. 20, 21.

19) $\int l(1 + q^2\,Tg^2 x) \frac{Cos\,2x}{p^2\,Sin^2 x + r^2\,Cos^2 x} \frac{dx}{s^2\,Sin^2 x + t^2\,Cos^2 x} = \frac{\pi}{p^2 t^2 - s^2 r^2}$
$\left\{\frac{p^2 + r^2}{pr}\,l\left(1 + \frac{qr}{p}\right) - \frac{s^2 + t^2}{st}\,l\left(1 + \frac{qt}{s}\right)\right\}$ V. T. 320, N. 20, 21.

20) $\int l(1 + q^2\,Tg^2 x) \frac{Sin^2 x}{p^2\,Sin^2 x + r^2\,Cos^2 x} \frac{dx}{s^2\,Sin^2 x + t^2\,Cos^2 x} = \frac{\pi}{p^2 t^2 - s^2 r^2}$
$\left\{\frac{t}{s}\,l\left(1 + \frac{qt}{s}\right) - \frac{r}{p}\,l\left(1 + \frac{qr}{p}\right)\right\}$ (VIII, 545).

21) $\int l(1 + q^2\,Tg^2 x) \frac{Cos^2 x}{p^2\,Sin^2 x + r^2\,Cos^2 x} \frac{dx}{s^2\,Sin^2 x + t^2\,Cos^2 x} = \frac{\pi}{p^2 t^2 - s^2 r^2}$
$\left\{\frac{p}{r}\,l\left(1 + \frac{qr}{p}\right) - \frac{s}{t}\,l\left(1 + \frac{qt}{s}\right)\right\}$ (VIII, 545).

1) $\int l\,Sin\,x \frac{dx}{1-2p\,Cos\,2x+p^2} = \frac{\pi}{2(1-p^2)} l\frac{1-p}{2} [p^2<1], = \frac{\pi}{2(p^2-1)} l\frac{p-1}{2p} [p^2>1]$
V. T. 321, N. 8.

2) $\int l\,Sin\,x \frac{Cos\,2x}{1-p\,Cos\,2x+p^2} dx = \frac{\pi}{2p(1-p^2)} \left\{\frac{1+p^2}{2} l(1-p) - p^2\, l2\right\} [p^2<1], =$
$= \frac{\pi}{2p(p^2-1)} \left\{\frac{1+p^2}{2} l\frac{p-1}{p} - l2\right\} [p^2>1]$ V. T. 321, N. 9.

3) $\int l\,Sin\,x \frac{dx}{1-2p\,Cos\,4x+p^2} = \frac{\pi}{4(1-p^2)} l\frac{1-p}{4} [p<1], = \frac{\pi}{4(p^2-1)} l\frac{p-1}{4p} [p>1]$
V. T. 321, N. 1.

4) $\int l\,Sin\,x \frac{Cos\,2x}{1-2p\,Cos\,4x+p^2} dx = \frac{\pi}{8(1-p)\sqrt{p}} l\frac{1-\sqrt{p}}{1+\sqrt{p}} [p<1], = \frac{\pi}{8(p-1)\sqrt{p}} l\frac{\sqrt{p}-1}{\sqrt{p}+1}$
$[p>1]$ V. T. 321, N. 1.

5) $\int l\,Sin\,x \frac{Cos^2\,2x}{1-2p\,Cos\,4x+p^2} dx = \frac{\pi}{8p(1-p)} \left\{\frac{1+p}{2} l(1-p) - 2p\, l2\right\} [p<1], =$
$= \frac{\pi}{8p(p-1)} \left\{\frac{1+p}{2} l\frac{p-1}{p} - 2\, l2\right\} [p>1]$ V. T. 321, N. 2.

6) $\int l\,Sin\,x \frac{Cos\,4x}{1-2p\,Cos\,4x+p^2} dx = \frac{\pi}{8p(1-p^2)} \left\{(1+p^2)\, l(1-p) - 4p^2\, l2\right\} [p<1], =$
$= \frac{\pi}{8p(p^2-1)} \left\{(1+p^2)\, l\frac{p-1}{p} - 4\, l2\right\} [p>1]$ V. T. 321, N. 2.

7) $\int l\,Sin\,x \frac{(1+p^2)\,Cos\,2x-2p}{(1-2p\,Cos\,2x+p^2)^2} dx = \frac{\pi}{4(p-1)} [p^2<1], = \frac{\pi}{4(1-p)} [p^2>1]$ V. T. 50, N. 2.

8) $\int l\,Cos\,x \frac{dx}{1-2p\,Cos\,2x+p^2} = \frac{\pi}{2(1-p^2)} l\frac{1+p}{2} [p^2<1], = \frac{\pi}{2(p^2-1)} l\frac{1+p}{2p} [p^2>1]$
(VIII, 678).

9) $\int l\,Cos\,x \frac{Cos\,2x}{1-2p\,Cos\,2x+p^2} dx = \frac{\pi}{2p(1-p^2)} \left\{\frac{1+p^2}{2} l(1+p) - p^2\, l2\right\} [p^2<1], =$
$= \frac{\pi}{2p(p^2-1)} \left\{\frac{1+p^2}{2} l\frac{p+1}{p} - l2\right\} [p^2>1]$ (VIII, 678).

10) $\int l\,Cos\,x \frac{dx}{1-2\,Cos\,4x+p^2} = \frac{\pi}{4(1-p^2)} l\frac{1-p}{4} [p<1], = \frac{\pi}{4(p^2-1)} l\frac{p-1}{4p} [p>1]$
V. T. 321, N. 8.

11) $\int l\,Cos\,x \frac{Cos\,2x}{1-2p\,Cos\,4x+p^2} dx = \frac{\pi}{8(1-p)\sqrt{p}} l\frac{1+\sqrt{p}}{1-\sqrt{p}} [p<1], = \frac{\pi}{8(p-1)\sqrt{p}} l\frac{\sqrt{p}+1}{\sqrt{p}-1}$
$[p>1]$ V. T. 321, N. 8.

12) $\int l\, Cos\, x \frac{Cos^2 2x}{1-2p\, Cos\, 4x+p^2} dx = \frac{\pi}{8p(1-p)} \left\{ \frac{1+p}{2} l(1-p) - 2p\, l2 \right\} [p<1], =$

$= \frac{\pi}{8p(p-1)} \left\{ \frac{1+p}{2} l \frac{p-1}{p} - 2\, l2 \right\} [p>1]$ V. T. 321, N. 9.

13) $\int l\, Cos\, x \frac{Cos\, 4x}{1-2p\, Cos\, 4x+p^2} dx = \frac{\pi}{8p(1-p^2)} \left\{ (1+p^2) l(1-p) - 4p^2\, l2 \right\} [p<1], =$

$= \frac{\pi}{8p(p^2-1)} \left\{ (1+p^2) l \frac{p-1}{p} - 4\, l2 \right\} [p>1]$ V. T. 321, N. 9.

14) $\int l\, Cos\, x \frac{(1+p^2)\, Cos\, 2x - 2p}{(1-2p\, Cos\, 2x+p^2)^2} dx = \frac{\pi}{4(1+p)}$ V. T. 50, N. 1.

15) $\int l\, Tg\, x \frac{dx}{1-2p\, Cos\, 2x+p^2} = \frac{\pi}{2(1-p^2)} l \frac{1-p}{1+p} [p^2<1], = \frac{\pi}{2(p^2-1)} l \frac{p-1}{p+1} [p^2>1]$

V. T. 321, N. 1, 8.

16) $\int l\, Tg\, x \frac{Cos\, 2x}{1-2p\, Cos\, 2x+p^2} dx = \frac{\pi}{4p} \frac{1+p^2}{1-p^2} l \frac{1-p}{1+p} [p^2<1], = \frac{\pi}{4p} \frac{p^2+1}{p^2-1} l \frac{p-1}{p+1} [p^2>1]$

V. T. 321, N. 2, 9.

17) $\int l\, Tg\, x \frac{dx}{1-2p\, Cos\, 4x+p^2} = 0$ V. T. 321, N. 3, 10.

18) $\int l\, Tg\, x \frac{Cos\, 2x}{1-2p\, Cos\, 4x+p^2} dx = \frac{\pi}{4(1-p)\sqrt{p}} l \frac{1-\sqrt{p}}{1+\sqrt{p}} [p<1], = \frac{\pi}{4(p-1)\sqrt{p}} l \frac{\sqrt{p}-1}{\sqrt{p}+1}$

$[p>1]$ V. T. 321, N. 4, 11.

19) $\int l\, Tg\, x \frac{Cos^2 2x}{1-2p\, Cos\, 4x+p^2} dx = 0$ V. T. 321, N. 5, 12.

20) $\int l\, Tg\, x \frac{Cos\, 4x}{1-2p\, Cos\, 4x+p^2} dx = 0$ V. T. 321, N. 6, 13.

21) $\int l\, Tg\, x \frac{(1+p^2)\, Cos\, 2x - 2p}{(1-2p\, Cos\, 2x+p^2)^2} dx = \frac{\pi}{2(p^2-1)} [p^2<1], = \frac{\pi}{2(1-p^2)} [p^2>1]$

V. T. 321, N. 7, 14.

F. Log. en num. de Circ. Dir. mon.; Circ. Dir. irrat. TABLE 322. Lim. 0 et $\frac{\pi}{2}$.

1) $\int l\, Sin\, x \frac{Sin\, x}{\sqrt{1+Sin^2 x}} dx = -\frac{\pi}{8} l2$ V. T. 118, N. 3.

2) $\int l\, Sin\, x \frac{Sin^3 x}{\sqrt{1+Sin^2 x}} dx = \frac{1}{4}(l2-1)$ V. T. 118, N. 4.

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3) $\int l\,Sin\,x \frac{dx}{\sqrt{1-p^2 Sin^2 x}} = -\frac{1}{2} l p . F'(p) - \frac{\pi}{4} F'\{\sqrt{1-p^2}\}$ $[p^2 < 1]$ (VIII, 354).

4) $\int l\,Sin\,x \frac{(1-Sin\,x)^{p-\frac{1}{2}}}{Sin^{p-\frac{1}{2}} x . Tg\,x} dx = -\frac{2\pi}{2p-1} Sec\,p\pi$ V. T. 55, N. 14.

5) $\int l\,Sin\,x \frac{Sin^{p-\frac{1}{2}} x}{(1-Sin\,x)^{p+\frac{1}{2}}} \frac{dx}{Tg\,x} = \frac{2\pi}{2p-1} Sec\,p\pi$ V. T. 61, N. 4.

6) $\int l\,Cos\,x \frac{Cos\,x}{\sqrt{1+Cos^2 x}} dx = -\frac{1}{8}\pi l 2$ V. T. 118, N. 3.

7) $\int l\,Cos\,x \frac{Cos^3 x}{\sqrt{1+Cos^2 x}} dx = \frac{1}{4}(l2-1)$ V. T. 118, N. 4.

8) $\int l\,Cos\,x \frac{(1-Cos\,x)^{p-\frac{3}{2}}}{Cos^{p+\frac{1}{2}} x} Sin\,x\,dx = \frac{2\pi}{1-2p} Sec\,p\pi$ V. T. 55, N. 14.

9) $\int l\,Cos\,x \frac{dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{4} F'(p) . l \frac{1-p^2}{p^2} - \frac{\pi}{4} F'\{\sqrt{1-p^2}\}$ $[p^2 < 1]$ (VIII, 354).

10) $\int l\,Cos\,x \frac{Cos^{p-\frac{3}{2}} x}{(1-Cos\,x)^{p+\frac{1}{2}}} Sin\,x\,dx = -\frac{2\pi}{1-2p} Sec\,p\pi$ V. T. 56, N. 11.

11) $\int l\,Tg\,x \frac{dx}{\sqrt{1-p^2 Sin^2 x}} = -\frac{1}{2} l(1-p^2) . F'(p)$ $[p^2 < 1]$ (VIII, 264).

12) $\int l\,Cot\frac{1}{2}x \frac{Sin\,x}{Sin^2\lambda + Tg^2\mu . Sin^2 x} \frac{Cos\,x}{\sqrt{Sin^2\lambda - Sin^2 x}} dx = \frac{\pi}{2} \frac{Cos^2\mu}{Sin\,\lambda . Sin\,\mu} l \frac{Sin\,\mu + \sqrt{1 - Cos^2\lambda . Cos^2\mu}}{Sin\,\mu . (1 + Sin\,\lambda)}$ (IV, 453).

1) $\int l(1-p^2 Sin^2 x) \frac{dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{2} l(1-p^2) . F'(p)$ (VIII, 353).

2) $\int l(1-p^2 Sin^2 x) \frac{Sin\,x . Cos\,x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{1}{p^2}[\{2 - l(1-p^2)\}\sqrt{1-p^2} - 2]$ (M, D. 16, 28).

3) $\int l(1-p^2 Sin^2 x) \frac{Sin^2 x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{1}{p^2}\left[\left\{p^2 - 2 + \frac{1}{2} l(1-p^2)\right\} F'(p) + \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)\right]$ (VIII, 424).

4) $\int l(1-p^2 Sin^2 x) \frac{Sin^2 x . Cos^2 x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{1}{9p^4}\left[\left\{(16 - 16p^2 + 3p^4) + \frac{3}{2}(1-p^2) l(1-p^2)\right\} F'(p) + \right.$

$\left. + \left\{2(1-5p^2) - \frac{3}{2}(1-2p^2) l(1-p^2)\right\} E'(p)\right]$.

5) $$\int l(1-p^2\,Sin^2 x)\frac{Sin^4 x}{\sqrt{1-p^2\,Sin^2 x}}dx=\frac{1}{9p^4}\Big[\Big\{-2(8+p^2-3p^4)+\frac{3}{2}(2+p^2)\,l(1-p^2)\Big\}F'(p)+\big\{2(8+5p^2)-3(1+p^2)\,l(1-p^2)\big\}E'(p)\Big].$$

Sur 4) et 5) voyez M, D. 16, 28.

6) $$\int l(1-p^2\,Sin^2 x)\frac{Cos^2 x}{\sqrt{1-p^2\,Sin^2 x}}dx=\frac{1}{p^2}\Big[\Big\{2-p^2-\frac{1}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)-\Big\{2-\frac{1}{2}l(1-p^2)\Big\}E'(p)\Big]$$ (VIII, 424).

7) $$\int l(1-p^2\,Sin^2 x)\frac{Cos^4 x}{\sqrt{1-p^2\,Sin^2 x}}dx=\frac{1}{9p^4}\Big[-\Big\{2(8-17p^2+6p^4)+\frac{3}{2}(1+3p^2)(1-p^2)\,l(1-p^2)\Big\}F'(p)+\Big\{-2(1+4p^2)+\frac{3}{2}(1+p^2)\,l(1-p^2)\Big\}E'(p)\Big]$$ (M, D. 16, 28).

8) $$\int l(1-p^2\,Sin^2 x)\frac{Cos\,2x}{\sqrt{1-p^2\,Sin^2 x}}dx=\frac{1}{p^2}\Big[\Big\{4-2p^2-\frac{1}{2}(2-p^2)\,l(1-p^2)\Big\}F'(p)-\big\{4-l(1-p^2)\big\}E'(p)\Big]$$ V. T. 323, N. 3, 6.

9) $$\int l(1-p^2\,Sin^2 x)\frac{dx}{\sqrt{1-p^2\,Sin^2 x}^3}=\frac{1}{1-p^2}\Big[(p^2-2)F'(p)+\Big\{2+\frac{1}{2}l(1-p^2)\Big\}E'(p)\Big]$$ (VIII, 569).

10) $$\int l(1-p^2\,Sin^2 x)\frac{Sin^2 x}{\sqrt{1-p^2\,Sin^2 x}^3}dx=\frac{-1}{p^2(1-p^2)}\Big[\Big\{(2-p^2)+\frac{1}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)-\Big\{2+\frac{1}{2}l(1-p^2)\Big\}E'(p)\Big]$$ (VIII, 569).

11) $$\int l(1-p^2\,Sin^2 x)\frac{Sin^2 x\,.\,Cos^2 x}{\sqrt{1-p^2\,Sin^2 x}^3}dx=\frac{1}{p^4}l(1-p^2).\Big\{\frac{1}{2}(2-p^2)F'(p)-E'(p)\Big\}.$$

12) $$\int l(1-p^2\,Sin^2 x)\frac{Sin^2 x\,.\,Cos^4 x}{\sqrt{1-p^2\,Sin^2 x}^3}dx=\frac{1}{9p^6}\Big[\Big\{(16-16p^2+3p^4)-\frac{3}{2}(8-3p^2)(1-p^2)\,l(1-p^2)\Big\}F'(p)+4(2-p^2)\big\{-2+3\,l(1-p^2)\big\}E'(p)\Big].$$

13) $$\int l(1-p^2\,Sin^2 x)\frac{Sin^4 x}{\sqrt{1-p^2\,Sin^2 x}^3}dx=\frac{1}{p^4(1-p^2)}\Big[-\big\{p^2(2-p^2)+(1-p^2)\,l(1-p^2)\big\}F'(p)+\Big\{2p^2+\frac{1}{2}(2-p^2)\,l(1-p^2)\Big\}E'(p)\Big].$$

14) $$\int l(1-p^2\,Sin^2 x)\frac{Sin^4 x\,.\,Cos^2 x}{\sqrt{1-p^2\,Sin^2 x}^3}dx=\frac{1}{9p^6}\Big[\Big\{-(16-16p^2+3p^4)+\frac{3}{2}(8-5p^2)\,l(1-p^2)\Big\}F'(p)+\Big\{8(2-p^2)-\frac{3}{2}(8-p^2)\,l(1-p^2)\Big\}E'(p)\Big].$$

15) $$\int l(1-p^2 Sin^2 x)\frac{Sin^6 x}{\sqrt{1-p^2 Sin^2 x}^3}dx=\frac{1}{9p^6(1-p^2)}\Big[\Big\{(16-32p^2+p^4+6p^6)-\frac{3}{2}(8+p^2)(1-p^2)l(1-p^2)\Big\}F(p)+\Big\{-2(8-12p^2-5p^4)+\frac{3}{2}(8-3p^2-2p^4)l(1-p^2)\Big\}E'(p)\Big].$$

Sur 11) à 15) voyez M, D. 16, 28.

16) $$\int l(1-p^2 Sin^2 x)\frac{Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^3}dx=\frac{1}{p^2}\Big[\Big\{2-p^2+\frac{1}{2}l(1-p^2)\Big\}F'(p)-\Big\{2+\frac{1}{2}l(1-p^2)\Big\}E'(p)\Big]$$ (VIII, 569).

17) $$\int l(1-p^2 Sin^2 x)\frac{Cos^4 x}{\sqrt{1-p^2 Sin^2 x}^3}dx=\frac{1}{p^4}\Big[\Big\{p^2(2-p^2)-(1-p^2)l(1-p^2)\Big\}F'(p)+\Big\{-2p^2+\frac{1}{2}(2-p^2)l(1-p^2)\Big\}E'(p)\Big].$$

18) $$\int l(1-p^2 Sin^2 x)\frac{Cos^6 x}{\sqrt{1-p^2 Sin^2 x}^3}dx=\frac{1}{9p^6}\Big[\Big\{-(16-16p^2-15p^4+9p^6)+\frac{3}{2}(8-9p^2)(1-p^2)l(1-p^2)\Big\}F'(p)+\Big\{2(8-4p^2-9p^4)-\frac{3}{2}(8-3p^2)(1-p^2)l(1-p^2)\Big\}E'(p)\Big].$$

Sur 17) et 18) voyez M, D. 16, 28.

19) $$\int l(1-p^2 Sin^2 x)\frac{Cos\, 2x}{\sqrt{1-p^2 Sin^2 x}^3}dx=\frac{1}{2p^2(1-p^2)}[2\{(2-p^2)^2+(1-p^2)l(1-p^2)\}F'(p)-(2-p^2)\{4+l(1-p^2)\}E'(p)]$$ (VIII, 569).

F. Log. en num. $l(1-p^2 Sin^2 x)$; $[p^2<1]$. Circ. Dir. irrat. en dén. d'autre forme; TABLE 324. Lim. 0 et $\frac{\pi}{2}$.

1) $$\int l(1-p^2 Sin^2 x)\frac{dx}{\sqrt{1-p^2 Sin^2 x}^5}=\frac{1}{9(1-p^2)^2}\Big[-\Big\{2(10-10p^2+3p^4)+\frac{3}{2}(1-p^2)l(1-p^2)\Big\}F'(p)+(2-p^2)\{10+3l(1-p^2)\}E'(p)\Big].$$

2) $$\int l(1-p^2 Sin^2 x)\frac{Sin^2 x}{\sqrt{1-p^2 Sin^2 x}^5}dx=\frac{1}{9p^2(1-p^2)^2}\Big[-\Big\{(2+7p^2-3p^4)+\frac{3}{2}(1-p^2)l(1-p^2)\Big\}F'(p)+\Big\{2(1+4p^2)+\frac{3}{2}(1+p^2)l(1-p^2)\Big\}E'(p)\Big].$$

3) $$\int l(1-p^2 Sin^2 x)\frac{Sin^2 x.Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^5}dx=\frac{1}{9p^4(1-p^2)}\Big[\{-(16-16p^2+3p^4)+3(1-p^2)l(1-p^2)\}F'(p)+(2-p^2)\Big\{8+\frac{3}{2}l(1-p^2)\Big\}E'(p)\Big].$$

4) $$\int l(1-p^2 Sin^2 x) \frac{Sin^2 x . Cos^4 x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{9p^6} \left[\left\{(16-16p^2+3p^4)+\frac{3}{2}(8-p^2)l(1-p^2)\right\} F'(p) - 4(2-p^2)\{2-3l(1-p^2)\} E'(p)\right].$$

5) $$\int l(1-p^2 Sin^2 x) \frac{Sin^2 x . Cos^6 x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{9p^8} \left[\{p^2(16-16p^2+3p^4)+6(4+6p^2-p^4)l(1-p^2)\} F'(p) - 4(2-p^2)\{2p^2-3(1+p^2)l(1-p^2)\} E'(p)\right].$$

6) $$\int l(1-p^2 Sin^2 x) \frac{Sin^4 x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{9p^4(1-p^2)^2} \left[\left\{2(8-17p^2+6p^4)+\frac{3}{2}(2-3p^2)(1-p^2) l(1-p^2)\right\} F'(p) - \{2(8-13p^2)+3(1-2p^2)l(1-p^2)\} E'(p)\right].$$

7) $$\int l(1-p^2 Sin^2 x) \frac{Sin^4 x . Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{9p^6(1-p^2)} \left[-\left\{(16-16p^2+3p^4)+\frac{3}{2}(8-3p^2)(1-p^2)l(1-p^2)\right\} F'(p) + \left\{8(2-p^2)+\frac{3}{2}(8-7p^2)l(1-p^2)\right\} E'(p)\right].$$

8) $$\int l(1-p^2 Sin^2 x) \frac{Sin^4 x . Cos^4 x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{3p^8} l(1-p^2) \left[-\frac{1}{2}(16+16p^2-3p^4)F'(p) - 4(2-p^2)E'(p)\right].$$

9) $$\int l(1-p^2 Sin^2 x) \frac{Sin^6 x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{9p^6(1-p^2)^2} \left[\left\{(16-16p^2-15p^4+9p^6)+\frac{3}{2}(8-9p^2)(1-p^2)l(1-p^2)\right\} F'(p) - \left\{2(8-4p^2-9p^4)+\frac{3}{2}(8-13p^2+3p^4)l(1-p^2)\right\} E'(p)\right].$$

10) $$\int l(1-p^2 Sin^2 x) \frac{Sin^6 x . Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{9p^8(1-p^2)} \left[\{-p^2(16-16p^2+3p^4)+12(2+p^2)(1-p^2)l(1-p^2)\} F'(p) + \left\{8p^2(2-p^2)+\frac{3}{2}(16-16p^2+p^4)l(1-p^2)\right\} E'(p)\right].$$

11) $$\int l(1-p^2 Sin^2 x) \frac{Sin^8 x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{9p^8(1-p^2)^2} \left[\left\{2p^2(16-24p^2+2p^4+3p^6) - \frac{3}{2}(16-16p^2+p^4)(1-p^2)l(1-p^2)\right\} F'(p) - \{2p^2(16-16p^2-5p^4) + 3(8-12p^2+2p^4+p^6)l(1-p^2)\} E'(p)\right].$$

12) $$\int l(1-p^2 Sin^2 x) \frac{Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{9p^2(1-p^2)} \left[\left\{(2-11p^2+6p^4)+\frac{3}{2}(1-p^2)l(1-p^2)\right\} F'(p) - \left\{2(1-5p^2)+\frac{3}{2}(1-2p^2)l(1-p^2)\right\} E'(p)\right].$$

13) $$\int l(1-p^2 Sin^2 x)\frac{Cos^4 x}{\sqrt{1-p^2 Sin^2 x}^5}dx=\frac{1}{9p^4}\left[\left\{2(8+p^2-3p^4)+\frac{3}{2}(2+p^2)\,l(1-p^2)\right\}F'(p)-\left\{2(8+5p^2)+3(1+p^2)\,l(1-p^2)\right\}E'(p)\right].$$

14) $$\int l(1-p^2 Sin^2 x)\frac{Cos^6 x}{\sqrt{1-p^2 Sin^2 x}^5}dx=\frac{1}{9p^6}\left[-\left\{(16-32p^2+p^4+6p^6)+\frac{3}{2}(8-3p^2-p^4)\,l(1-p^2)\right\}F'(p)+\left\{2(8-12p^2-5p^4)-3(8-5p^2-p^4)\,l(1-p^2)\right\}E'(p)\right].$$

15) $$\int l(1-p^2 Sin^2 x)\frac{Cos^8 x}{\sqrt{1-p^2 Sin^2 x}^5}dx=\frac{1}{9p^8}\left[-\left\{2p^2(16-8p^2+2p^4+3p^6)+\frac{3}{2}(16-p^4)(1+p^2)\,l(1-p^2)\right\}F'(p)+\left\{2p^2(16-14p^2-5p^4)-3(8+4p^2-9p^4-p^6)\,l(1-p^2)\right\}E'(p)\right].$$

Sur 1) à 15) voyez M, D. 16, 28.

16) $$\int l(1-p^2 Sin^2 x)\frac{Cos\,2x}{\sqrt{1-p^2 Sin^2 x}^5}dx=\frac{1}{9p^2(1-p^2)^2}\left[\left\{(4-6p^2+9p^4-6p^6)+\frac{3}{2}(2-p^2)(1-p^2)\,l(1-p^2)\right\}F'(p)-\left\{2(2-2p^2+5p^4)+3(1-p^2+p^4)\right\}E'(p)\right]$$

V. T. 324, N. 2, 12.

17) $$\int l(1-p^2 Sin^2 x)\frac{Sin\,x\,.\,Cos\,x}{\sqrt{1-p^2 Sin^2 x}^{2a+1}}dx=\frac{1}{(2a-1)^2p^2}\left[\left\{2+(2a-1)\,l(1-p^2)\right\}\sqrt{1-p^2}^{\,1-2a}-2\right]$$

M, D. 16, 28.

18) $$\int l(1-p^2 Sin^2 x)\,.\,dx\sqrt{1-p^2 Sin^2 x}=(2-p^2)F'(p)-\left\{2-\frac{1}{2}l(1-p^2)\right\}E'(p)\ \text{(VIII, 424)}.$$

19) $$\int l(1-p^2 Sin^2 x)\,.\,Sin\,x\,.\,Cos\,x\,dx\sqrt{1-p^2 Sin^2 x}=\frac{1}{9p^2}\left[\left\{2-3\,l(1-p^2)\right\}\sqrt{1-p^2}^3-2\right].$$

20) $$\int l(1-p^2 Sin^2 x)\,.\,Sin^2 x\,dx\sqrt{1-p^2 Sin^2 x}=\frac{1}{9p^2}\left[\left\{-(2-11p^2+6p^4)+\frac{3}{2}(1-p^2)\,l(1-p^2)\right\}F'(p)+\left\{2(1-5p^2)-\frac{3}{2}(1-2p^2)\,l(1-p^2)\right\}E'(p)\right].$$

21) $$\int l(1-p^2 Sin^2 x)\,.\,Cos^2 x\,dx\sqrt{1-p^2 Sin^2 x}=\frac{1}{9p^2}\left[\left\{(2+7p^2-3p^4)-\frac{3}{2}(1-p^2)\,l(1-p^2)\right\}F'(p)+\left\{2(1+4p^2)+3(2-p^2)\,l(1-p^2)\right\}E'(p)\right].$$

22) $$\int l(1-p^2 Sin^2 x)\,.\,dx\sqrt{1-p^2 Sin^2 x}^3=\frac{1}{9}\left[\left\{2(10-10p^2+3p^4)-\frac{3}{2}(1-p^2)\,l(1-p^2)\right\}F'(p)-(2-p^2)\left\{10-3\,l(1-p^2)\right\}E'(p)\right].$$

Sur 19) à 22) voyez M, D. 16, 28.

1) $\int l\left\{\frac{1+Cos\,x.\sqrt{Sin^2\lambda - Sin^2\mu.Sin^2 x}}{1-Cos\,x.\sqrt{Sin^2\lambda - Sin^2\mu.Sin^2 x}}\right\}.dx = \pi\, l\left[\frac{1}{2}\left\{Cos^2\frac{1}{2}\lambda + \sqrt{Cos^4\frac{1}{2}\lambda + Sin^2\frac{1}{2}\mu.Cos^2\frac{1}{2}\mu}\right\}\right]$ (IV, 454).

2) $\int l\left\{\frac{1-Coshp\,\lambda.Coshp\,\mu.Cos\,x.\sqrt{1-Cothp^2\lambda.Tghp^2\mu.Cos^2 x}}{1+Coshp\,\lambda.Coshp\,\mu.Cos\,x.\sqrt{1-Cothp^2\lambda.Tghp^2\mu.Cos^2 x}}\right\}.dx =$

$= \pi\, l\left\{\frac{4\,Sinhp\,\lambda}{(1+Sinhp\,\lambda)\left\{Sinhp\,\lambda + \sqrt{1-Coshp^2\lambda.Coshp^2\mu}\right\}}\right\}$ (IV, 454).

3) $\int l\{1+\sqrt{1-p^2 Sin^2 x}\}\frac{dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{2}\,l p.F'(p) + \frac{\pi}{4}F'\{\sqrt{1-p^2}\}$

Sylvester, Quart. Journ. 4, 319.

4) $\int l(1+p\,Sin^2 x)\frac{dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{2}\,l\left\{\frac{2(1+p)}{\sqrt{p}}\right\}.F'(p) - \frac{\pi}{8}F'\{\sqrt{1-p^2}\}$ (VIII, 353).

5) $\int l(1-p\,Sin^2 x)\frac{dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{2}\,l\left\{\frac{2(1-p)}{\sqrt{p}}\right\}.F'(p) - \frac{\pi}{8}F'\{\sqrt{1-p^2}\}$ (VIII, 354).

6) $\int l\{Cos^2 x + Sin^2 x.\sqrt{1-p^2}\}\frac{dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{2}\,l\left\{\frac{2\sqrt[4]{1-p^2}^{\,2}}{1+\sqrt{1-p^2}}\right\}.F'(p)$ (VIII, 551).

7) $\int l\{1+Cot^2\lambda.Sin^2 x\}\frac{dx}{\sqrt{1-p^2 Sin^2 x}} = \pi F\{\sqrt{1-p^2},\lambda\} - 2F'(p).T\{\sqrt{1-p^2},\lambda\} -$

$- 2F'(p).l\,Sin\,\lambda - \frac{1}{2}\pi F'\{\sqrt{1-p^2}\} - F'(p).lp - \{E'(p)-F'(p)\}[F\{\sqrt{1-p^2},\lambda\}]^2$

(VIII, 352).

8) $\int l\left\{1-\{1-(1-p^2)Sin^2\lambda\}Sin^2 x\right\}\frac{dx}{\sqrt{1-p^2 Sin^2 x}} = \pi F\{\sqrt{1-p^2},\lambda\} - 2F'(p).T\{\sqrt{1-p^2},\lambda\} +$

$+ \frac{1}{2}F'(p).l\frac{1-p^2}{p^2} - \frac{1}{2}\pi F'\{\sqrt{1-p^2}\} - \{E'(p)-F'(p)\}[F\{\sqrt{1-p^2},\lambda\}]^2$

(VIII, 353).

9) $\int l\{1-p^2 Sin^2\lambda.Sin^2 x\}\frac{dx}{\sqrt{1-p^2 Sin^2 x}} = E'(p).\{F(p,\lambda)\}^2 - 2F'(p).T(p,\lambda)$ (VIII, 351).

10) $\int l\{1-p^2 Sin^4 x\}\frac{dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{2}\,l\left\{\frac{4(1-p^2)}{p^2}\right\}.F'(p) - \frac{1}{4}\pi F'\{\sqrt{1-p^2}\}$ (VIII, 354).

11) $\int l\left(\frac{1+q\sqrt{1-p^2 Sin^2 x}}{1-q\sqrt{1-p^2 Sin^2 x}}\right)\frac{dx}{\sqrt{1-p^2 Sin^2 x}} = \pi F\{\sqrt{1-p^2}, Arcsin\,q\}$ (VIII, 344).

12) $\int l\left(\frac{Cos\frac{1}{2}x + \sqrt{Cos\,x}}{Cos\frac{1}{2}x - \sqrt{Cos\,x}}\right).dx = \pi\, l\frac{\sqrt{2}+1}{\sqrt{2}-1}$ Enneper, Schl. Z. 7, 346.

1) $\int \frac{(Sin^q x - Cosec^q x)^2}{l\, Sin\, x} Tg\, x\, dx = l \frac{Sin\, q\pi}{q\pi}$ V. T. 130, N. 13.

2) $\int \frac{1 + Sin\, x}{l\, Sin\, x} Sin\, (l\, Sin\, x) . Sin\, 2x\, dx = \frac{1}{2}\pi$ V. T. 405, N. 3.

3) $\int \frac{Sin^q x - Sin^p x}{l\, Sin\, x} Sin\, 2x\, dx = 2\, l \frac{q+2}{p+2}$ V. T. 123, N. 3.

4) $\int \frac{(Sin^p x - Sin^q x)(Sin^r x - Sin^s x)}{l\, Sin\, x} Sin\, 2x\, dx = 2\, l \frac{(p+r+2)(q+s+2)}{(p+s+2)(q+r+2)}$ V. T. 123, N. 7.

5) $\int \frac{(1 - Sin^{1-q} x)^2}{l\, Sin\, x} \frac{Sin^q x}{Sin\, 2x} dx = \frac{1}{2} l\, Sin \frac{1}{2} q\pi$ V. T. 128, N. 9.

6) $\int \frac{Cos\, (2p\, l\, Sin\, x)}{l\, Sin\, x} \frac{dx}{Cos\, x} = \frac{1}{2} l \frac{1}{e^{p\pi} + e^{-p\pi}}$ V. T. 405, N. 14.

7) $\int \frac{1 - Sin^q x}{l\, Sin\, x} \frac{1 - Sin^{q+1} x}{Cos\, x} dx = -q\, l\, 2\, [q > -1]$ V. T. 128, N. 12.

8) $\int \frac{(Sin^q x - Cosec^q x)^2}{l\, Sin\, x} \frac{dx}{Cos\, x} = l\, Cos\, q\pi$ V. T. 130, N. 12.

9) $\int \frac{Cos\, (2p\, l\, Sin\, x)}{l\, Sin\, x} \frac{Sin\, x + Cosec\, x}{Cos\, x} dx = -l\, (e^{p\pi} - e^{-p\pi})$ V. T. 405, N. 16.

10) $\int \frac{Cos^2 x}{l\, Sin\, x} \frac{dx}{1 + Sin^4 x} = l\, Cot \frac{3\pi}{8}$ V. T. 128, N. 3.

11) $\int \frac{Sin^q x - Cosec^q x}{Sin^p x + Cosec^p x} \frac{dx}{Tg\, x . l\, Sin\, x} = l\, Tg \left(\frac{p+q}{4p} \pi \right)$ V. T. 128, N. 5.

12) $\int \frac{Cosec^q x - Sin^q x}{(l\, Sin\, x)^p} \frac{dx}{Cos\, x} = (-1)^p \Gamma (1-p) . \sum_1^\infty \left\{ \frac{1}{(2n-1-q)^{1-p}} - \frac{1}{(2n-1+q)^{1-p}} \right\}$

V. T. 131, N. 2.

13) $\int \frac{Cos^q x - Cos^p x}{l\, Cos\, x} Sin\, 2x\, dx = 2\, l \frac{q+2}{p+2}$ V. T. 123, N. 3.

14) $\int \frac{(Cos^p x - Cos^q x)(Cos^r x - Cos^s x)}{l\, Cos\, x} Sin\, 2x\, dx = 2\, l \frac{(p+r+2)(q+s+2)}{(p+s+2)(q+r+2)}$ V. T. 123, N. 7.

15) $\int \frac{1 + Cos\, x}{l\, Cos\, x} Sin\, (l\, Cos\, x) . Sin\, 2x\, dx = \frac{1}{2}\pi$ V. T. 405, N. 3.

16) $\int \frac{(Cos^q x - Sec^q x)^2}{l\, Cos\, x} \frac{dx}{Sin\, x} = l\, Cos\, q\pi$ V. T. 130, N. 12.

17) $\int \frac{1-Cos^q x}{l\,Cos\,x}\,\frac{1-Cos^{q+1} x}{Sin\,x}\,dx = -q\,l\,2\;[q > -1]$ V. T. 128, N. 12.

18) $\int \frac{Cos(2p\,l\,Cos\,x)}{l\,Cos\,x}\,\frac{dx}{Sin\,x} = -\frac{1}{2}\,l(e^{p\pi}+e^{-p\pi})$ V. T. 405, N. 14.

19) $\int \frac{(1-Cos^{1-q} x)^2}{l\,Cos\,x}\,\frac{Cos^q x}{Sin\,2x}\,dx = \frac{1}{2}\,l\,Sin\,\frac{1}{2}q\pi$ V. T. 128, N. 9.

20) $\int \frac{Cos(2p\,l\,Cos\,x)}{l\,Cos\,x}\,\frac{Cos\,x + Sec\,x}{Sin\,x}\,dx = -l(e^{p\pi}-e^{-p\pi})$ V. T. 405, N. 16.

21) $\int \frac{(Cos^q x - Sec^q x)^2}{l\,Cos\,x}\,\frac{dx}{Tg\,x} = l\,\frac{Sin\,q\pi}{q\pi}$ V. T. 130, N. 13.

22) $\int \frac{Cos^q x - Sec^q x}{Cos^p x + Sec^p x}\,\frac{Tg\,x}{l\,Cos\,x}\,dx = l\,Tg\left(\frac{p+q}{4p}\,\pi\right)$ V. T. 128, N. 5.

23) $\int \frac{Tg^{p-1} x - Tg^{q-1} x}{l\,Tg\,x}\,dx = l\left(Tg\,\frac{1}{4}p\pi\,.\,Cot\,\frac{1}{4}q\pi\right)$ V. T. 143, N. 2.

24) $\int \frac{Tg^p x - Tg^q x}{Sin\,x + Cos\,x}\,\frac{dx}{Sin\,x\,.\,l\,Tg\,x} = l\left(Tg\,\frac{1}{2}p\pi\,.\,Cot\,\frac{1}{2}q\pi\right)$ V. T. 143, N. 2.

25) $\int \frac{Tg^{p-1} x - Tg^{q-1} x}{l\,Tg\,x}\,\frac{dx}{Cos\,2x} = l\left(Sin\,\frac{1}{2}p\pi\,.\,Cosec\,\frac{1}{2}q\pi\right)$ V. T. 143. N. 4.

26) $\int \frac{Tg^{p-1} x - Tg^{q-1} x}{l\,Tg\,x}\,\frac{dx}{Tg^{p+q} x} = l\left(Tg\,\frac{1}{4}p\pi\,.\,Cot\,\frac{1}{4}q\pi\right)$ V. T. 143, N. 2.

27) $\int \frac{Tg^{p-1} x - Tg^{q-1} x}{Tg^{p+q} x\,.\,l\,Tg\,x}\,\frac{dx}{Cos\,2x} = l\left(Sin\,\frac{1}{2}q\pi\,.\,Cosec\,\frac{1}{2}p\pi\right)$ V. T. 143, N. 4.

28) $\int \frac{Tg^p x - Tg^q x}{Sin\,x + Cos\,x}\,\frac{dx}{Tg^{p+q+1} x\,.\,Cos\,x\,.\,l\,Tg\,x} = l\left(Tg\,\frac{1}{2}p\pi\,.\,Cot\,\frac{1}{2}q\pi\right)$ V. T. 143, N. 2.

F. Log. en dén. $q^2 + (l\,Sin\,x)^2$; Circ. Dir. TABLE 327. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{Sin^p x - Cosec^p x}{\pi^2 + (l\,Sin\,x)^2}\,\frac{dx}{Cos\,x} = \frac{1}{2\pi}\left\{p\pi\,Cos\,p\pi - Sin\,p\pi\,.\,l\{2(1+Cos\,p\pi)\}\right\}\;[p \leqq 1]$ V. T. 131, N. 4.

2) $\int \frac{Sin^{p-1} x - Sin^{1-p} x}{q^2 + (l\,Sin\,x)^2}\,\frac{dx}{Cos\,x} = \frac{\pi}{q}\sum_1^\infty \frac{Sin\,np\pi}{q+n\pi}\;[p^2 < 1]$ V. T. 131, N. 12.

3) $\int \frac{Sin^p x - Cosec^p x}{\pi^2 + (l\,Sin^2 x)^2}\,\frac{dx}{Cos\,x} = -\frac{1}{4}\,Sin\,\frac{1}{2}p\pi + \frac{1}{4\pi}\,Cos\,\frac{1}{2}p\pi\,.\,l\,\frac{1+Sin\,\frac{1}{2}p\pi}{1-Sin\,\frac{1}{2}p\pi}\;[p^2 \leqq 1]$ V. T. 131, N. 6.

4) $\int \frac{l\,Sin\,x}{\pi^2 + (l\,Sin\,x)^2} \frac{dx}{Cos\,x} = \frac{1}{2}\left(\frac{1}{2} - l2\right)$ V. T. 129, N. 10.

5) $\int \frac{l\,Sin\,x}{\pi^2 + (l\,Sin^2\,x)^2} \frac{dx}{Cos\,x} = \frac{1}{16}(2-\pi)$ V. T. 129, N. 11.

6) $\int \frac{Tg\,x\,.\,l\,Sin\,x}{q^2 + (l\,Sin\,x)^2} dx = \frac{1}{2}\left\{l\frac{\pi}{q} + \frac{\pi}{2q} + Z'\left(\frac{q}{\pi}\right)\right\}$ V. T. 129, N. 14.

7) $\int \frac{Tg\,x\,.\,l\,Sin\,x}{\pi^2 + (l\,Sin\,x)^2} dx = \frac{1}{4} - \frac{1}{2}A$ V. T. 129, N. 13.

8) $\int \frac{Tg\,x\,.\,l\,Sin\,x}{q^2 - (l\,Sin\,x)^2} dx = \frac{\pi^2}{4q^2}\sum_0^\infty (-1)^{n+1}\frac{1}{n+1}B_{2n+1}\left(\frac{\pi}{q}\right)^{2n}$ V. T. 129, N. 15.

9) $\int \frac{Sin^p\,x + Cosec^p\,x}{\pi^2 + (l\,Sin\,x)^2} \frac{l\,Sin\,x}{Cos\,x} dx = \frac{1}{2}\left\{1 - p\pi\,Sin\,p\pi - Cos\,p\pi\,.\,l\left\{2(1 + Cos\,p\pi)\right\}\right\}$ $[p^2 \leqq 1]$
V. T. 131, N. 3.

10) $\int \frac{Sin^{p-1}\,x + Sin^{1-p}\,x}{q^2 + (l\,Sin\,x)^2} \frac{l\,Sin\,x}{Cos\,x} dx = -\frac{\pi}{2q} - \pi\sum_1^\infty \frac{Cos\,n\,p\,\pi}{q + n\pi}$ $[p^2 < 1]$ V. T. 131, N. 11.

11) $\int \frac{Sin^p\,x + Cosec^p\,x}{\pi^2 + (l\,Sin^2\,x)^2} \frac{l\,Sin\,x}{Cos\,x} dx = \frac{1}{4} - \frac{1}{8}\pi\,Cos\,\frac{1}{2}p\pi + \frac{1}{8}Sin\,\frac{1}{2}p\pi\,.\,l\frac{1 - Sin\,\frac{1}{2}p\pi}{1 + Sin\,\frac{1}{2}p\pi}$ $[p^2 < 1]$
V. T. 131, N. 5.

12) $\int \frac{l\,Cos\,x}{q^2 + (l\,Sin\,x)^2} \frac{dx}{Tg\,x} = \frac{\pi}{2q} l\Gamma\left(\frac{q+\pi}{\pi}\right) + \frac{\pi}{4q} l2q + \frac{1}{2}\left(l\frac{q}{\pi} - 1\right)$ V. T. 126, N. 11.

13) $\int \frac{Tg\,x\,.\,l\,Sin\,x}{\{q^2 + (l\,Sin\,x)^2\}^2} dx = -\frac{\pi^2}{4q^4}\sum_0^\infty B_{2n+1}\left(\frac{\pi}{q}\right)^{2n}$ V. T. 129, N. 16.

14) $\int \frac{Tg\,x\,.\,l\,Sin\,x}{\{q^2 - (l\,Sin\,x)^2\}^2} dx = \frac{\pi^2}{4q^4}\sum_0^\infty (-1)^{n+1} B_{2n+1}\left(\frac{\pi}{q}\right)^{2n}$ V. T. 129, N. 17.

15) $\int \frac{\pi^2 - (l\,Sin\,x)^2}{\{\pi^2 + (l\,Sin\,x)^2\}^2} \frac{l\,Cos\,x}{Tg\,x} dx = \frac{1}{4}(1 - 2A)$ V. T. 327, N. 7.

16) $\int \frac{q^2 - 3(l\,Sin\,x)^2}{\{q^2 + (l\,Sin\,x)^2\}^3} \frac{l\,Cos\,x}{Tg\,x} dx = -\frac{\pi^2}{4q^4}\sum_0^\infty B_{2n+1}\left(\frac{\pi}{q}\right)^{2n}$ V. T. 327, N. 13.

17) $\int \frac{q^2 + (l\,Sin\,x)^2}{\{q^2 - (l\,Sin\,x)^2\}^2} \frac{l\,Cos\,x}{Tg\,x} dx = \frac{\pi^2}{4q^2}\sum_0^\infty \frac{(-1)^{n+1}}{n+1} B_{2n+1}\left(\frac{\pi}{q}\right)^{2n}$ V. T. 327, N. 8.

18) $\int \frac{q^2 + 3(l\,Sin\,x)^2}{\{q^2 - (l\,Sin\,x)^2\}^3} \frac{l\,Cos\,x}{Tg\,x} dx = \frac{\pi^2}{4q^4}\sum_0^\infty (-1)^{n+1} B_{2n+1}\left(\frac{\pi}{q}\right)^{2n}$ V. T. 327, N. 14.

1) $\int \frac{Cos^p x - Sec^p x}{\pi^2 + (l\, Cos\, x)^2} \frac{dx}{Sin\, x} = \frac{1}{2\pi} \left\{ p\pi\, Cos\, p\pi - Sin\, p\pi . l \{2(1 + Cos\, p\pi)\} \right\}$ $[p < 1]$ V. T. 131, N. 4.

2) $\int \frac{Cos^p x - Sec^p x}{\pi^2 + (l\, Cos^2 x)^2} \frac{dx}{Sin\, x} = -\frac{1}{4} Sin \frac{1}{2} p\pi + \frac{1}{4\pi} Cos \frac{1}{2} p\pi . l \frac{1 + Sin \frac{1}{2} p\pi}{1 - Sin \frac{1}{2} p\pi}$ $[p^2 \leqq 1]$ V. T. 131, N. 6.

3) $\int \frac{Cos^{p-1} x - Cos^{1-p} x}{q^2 + (l\, Cos\, x)^2} \frac{dx}{Sin\, x} = \frac{\pi}{q} \sum_1^\infty \frac{Sin\, np\pi}{q + n\pi}$ $[p^2 < 1]$ V. T. 131, N. 12.

4) $\int \frac{l\, Cos\, x}{\pi^2 + (l\, Cos\, x)^2} \frac{dx}{Sin\, x} = \frac{1}{2} \left(\frac{1}{2} - l 2 \right)$ V. T. 129, N. 10.

5) $\int \frac{l\, Cos\, x}{\pi^2 + (l\, Cos^2 x)^2} \frac{dx}{Sin\, x} = \frac{1}{16} (2 - \pi)$ V. T. 129, N. 11.

6) $\int \frac{l\, Cos\, x}{\pi^2 + (l\, Cos\, x)^2} \frac{dx}{Tg\, x} = \frac{1}{4} (1 - 2\, A)$ V. T. 129, N. 13.

7) $\int \frac{l\, Cos\, x}{q^2 + (l\, Cos\, x)^2} \frac{dx}{Tg\, x} = \frac{1}{2} \left\{ l \frac{\pi}{q} + \frac{\pi}{2q} + Z' \left(\frac{q}{\pi} \right) \right\}$ V. T. 129, N. 14.

8) $\int \frac{l\, Cos\, x}{q^2 - (l\, Cos\, x)^2} \frac{dx}{Tg\, x} = \frac{\pi^2}{4q^2} \sum_0^\infty \frac{(-1)^{n+1}}{n+1} B_{2n+1} \left(\frac{\pi}{q} \right)^{2n}$ V. T. 129, N. 15.

9) $\int \frac{Cos^p x + Sec^p x}{\pi^2 + (l\, Cos\, x)^2} \frac{l\, Cos\, x}{Sin\, x} dx = \frac{1}{2} \left\{ 1 - p\pi\, Sin\, p\pi - Cos\, p\pi . l \{2(1 + Cos\, p\pi)\} \right\}$ $[p^2 \leqq 1]$ V. T. 131, N. 3.

10) $\int \frac{Cos^p x + Sec^p x}{\pi^2 + (l\, Cos^2 x)^2} \frac{l\, Cos\, x}{Sin\, x} dx = \frac{1}{4} - \frac{\pi}{8} Cos \frac{1}{2} p\pi + \frac{1}{8} Sin \frac{1}{2} p\pi . l \frac{1 - Sin \frac{1}{2} p\pi}{1 + Sin \frac{1}{2} p\pi}$ $[p^2 < 1]$ V. T. 131, N. 5.

11) $\int \frac{Cos^{p-1} x + Cos^{1-p} x}{q^2 + (l\, Cos\, x)^2} \frac{l\, Cos\, x}{Sin\, x} dx = -\frac{\pi}{2q} - \pi \sum_1^\infty \frac{Cos\, np\pi}{q + n\pi}$ $[p^2 < 1]$ V. T. 131, N. 11.

12) $\int \frac{l\, Sin\, x . Tg\, x}{q^2 + (l\, Cos\, x)^2} dx = \frac{\pi}{2q} l \Gamma \left(\frac{q + \pi}{\pi} \right) + \frac{\pi}{4q} l\, 2q + \frac{1}{2} \left(l \frac{q}{\pi} - 1 \right)$ V. T. 126, N. 11.

13) $\int \frac{l\, Cos\, x}{\{q^2 + (l\, Cos\, x)^2\}^2} \frac{dx}{Tg\, x} = -\frac{\pi^2}{4q^4} \sum_0^\infty B_{2n+1} \left(\frac{\pi}{q} \right)^{2n}$ V. T. 129, N. 16

14) $\int \frac{\pi^2 - (l\, Cos\, x)^2}{\{\pi^2 + (l\, Cos\, x)^2\}^2} Tg\, x . l\, Sin\, x . dx = \frac{1}{4} (1 - 2\, A)$ V. T. 328, N. 6.

15) $\int \frac{q^2 + (l\, Cos\, x)^2}{\{q^2 - (l\, Cos\, x)^2\}^2} Tg\, x . l\, Sin\, x . dx = \frac{\pi^2}{4q^2} \sum_0^\infty \frac{(-1)^{n+1}}{n+1} B_{2n+1} \left(\frac{\pi}{q} \right)^{2n}$ V. T. 328, N. 8.

16) $\int \frac{q^2 - 3 (l\, Cos\, x)^2}{\{q^2 + (l\, Cos\, x)^2\}^3} Tg\, x . l\, Sin\, x . dx = -\frac{\pi^2}{4q^4} \sum_0^\infty B_{2n+1} \left(\frac{\pi}{q} \right)^{2n}$ V. T. 328, N. 13.

17) $\int \frac{l\, Cos\, x}{\{q^2-(l\, Cos\, x)^2\}^2} \frac{dx}{Tg\, x} = \frac{\pi^2}{4q^4} \sum_0^\infty (-1)^{n+1} B_{2n+1} \left(\frac{\pi}{q}\right)^{2n}$ V. T. 129, N. 17.

18) $\int \frac{q^2+3(l\, Cos\, x)^2}{\{q^2-(l\, Cos\, x)^2\}^3} Tg\, x . l\, Sin\, x . dx = \frac{\pi^2}{4q^4} \sum_0^\infty (-1)^{n+1} B_{2n+1} \left(\frac{\pi}{q}\right)^{2n}$ V. T. 328, N. 17.

F. Log. sous forme irrat.; Circ. Dir.

TABLE 329.

Lim. 0 et $\frac{\pi}{2}$.

1) $\int \sqrt{l\, Cosec\, x} . Cos\, x\, dx = \frac{1}{2}\sqrt{\pi}$ V. T. 32, N. 1.

2) $\int (l\, Cosec\, x)^{a-\frac{1}{2}} \frac{Sin^p\, x}{Tg\, x} dx = \frac{1^{a/1}}{(2p)^a} \sqrt{\frac{\pi}{p}}$ V. T. 107, N. 2.

3) $\int Cos\, x \frac{dx}{\sqrt{l\, Cosec\, x}} = \sqrt{\pi}$ V. T. 32, N. 3.

4) $\int \frac{Sin^p\, x}{Tg\, x} \frac{dx}{\sqrt{l\, Cosec\, x}} = \sqrt{\frac{\pi}{p}}$ V. T. 133, N. 1.

5) $\int \sqrt{l\, Sec\, x} . Sin\, x\, dx = \frac{1}{2}\sqrt{\pi}$ V. T. 32, N. 1.

6) $\int (l\, Sec\, x)^{a-\frac{1}{2}} . Cos^p x . Tg\, x\, dx = \frac{1^{a/1}}{(2p)^a} \sqrt{\frac{\pi}{p}}$ V. T. 107, N. 2.

7) $\int Sin\, x \frac{dx}{\sqrt{l\, Sec\, x}} = \sqrt{\pi}$ V. T. 32, N. 3.

8) $\int Cos^{p-2} x . Sin\, 2x \frac{dx}{\sqrt{l\, Sec\, x}} = 2\sqrt{\frac{\pi}{p}}$ V. T. 133, N. 1.

F. Log. de Circ. Dir.; Circ. Dir. rat. ent.

TABLE 330.

Lim. 0 et π.

1) $\int l(1 \pm p\, Cos\, x)^2 . dx = 2\pi\, l \frac{1+\sqrt{1-p^2}}{2} [p^2 \leqq 1], = -2\pi\, l 2p [p^2 \geqq 1]$ (VIII, 356, 357).

2) $\int l(p \pm Cos\, x)^2 . dx = -2\pi\, l 2 [p^2 \leqq 1], = -4\pi\, l \{\sqrt{p+1} - \sqrt{p-1}\} [p^2 \geqq 1]$ (VIII, 356).

3) $\int l(1-p^2 Cos^2 x)^2 . dx = 4\pi\, l \frac{1+\sqrt{1-p^2}}{2} [p^2 \leqq 1], = -4\pi\, l 2p [p^2 \geqq 1]$ (VIII, 356, 357).

4) $\int l(p^2 - Cos^2 x)^2 . dx = -4\pi\, l 2 [p^2 \leqq 1], = -8\pi\, l \{\sqrt{p+1} - \sqrt{p-1}\} [p^2 \geqq 1]$

(VIII, 356).

5) $\int l(1-2p\,Cos\,x+p^2).dx = 0\,[p^2 \leqq 1], = 2\pi\,lp\,[p^2 \geqq 1]$ (VIII, 259).

6) $\int l\,Sin\,x.Sin\,2ax\,dx = 0$ (IV, 400*).

7) $\int l\,Sin\,x\,Cos\,2ax\,dx = \frac{-1}{2a}$ (IV, 400*).

8) $\int l\,Sin\,x.Cos\{2b(x-a)\}\,dx = -\frac{1}{2b}e^{-2abi}$ (IV, 400*).

9) $\int l\,Sin\,x.Sin^{2a}2x.Cos\,2x\,dx = \frac{-\pi}{4a+2}\,\frac{1^{a/2}}{2^{a/2}}$ (IV, 462).

10) $\int l(1-2p\,Cos\,x+p^2).Sin\,ax.Sin\,x\,dx = \frac{\pi}{2}\left(\frac{p^{a+1}}{a+1}-\frac{p^{a-1}}{a-1}\right)$ (VIII, 583).

11) $\int l(1-2p\,Cos\,x+p^2).Cos\,ax\,dx = -\frac{\pi}{a}p^a$ (VIII, 276).

12) $\int l(1-2p\,Cos\,x+p^2).Cos\,ax.Cos\,x\,dx = -\frac{\pi}{2}\left(\frac{p^{a+1}}{a+1}+\frac{p^{a-1}}{a-1}\right)$ (VIII, 583).

13) $\int l(1-2p\,Cos\,2x+p^2).Sin\,2ax.Sin\,x\,dx = 0$ V. T. 330, N. 15.

14) $\int l(1-2p\,Cos\,2x+p^2).Sin\{(2a-1)x\}.Sin\,x\,dx = \frac{\pi}{2}\left(\frac{p^a}{a}-\frac{p^{a-1}}{a-1}\right)$ V. T. 332, N. 5.

15) $\int l(1-2p\,Cos\,2x+p^2).Cos\{(2a-1)x\}\,dx = 0$ (IV, 462).

16) $\int l(1-2p\,Cos\,2x+p^2).Cos\,2ax.Cos\,x\,dx = 0$ V. T. 330, N. 15.

17) $\int l(1-2p\,Cos\,2x+p^2).Cos\{(2a-1)x\}.Cos\,x\,dx = -\frac{\pi}{2}\left(\frac{p^a}{a}+\frac{p^{a-1}}{a-1}\right)$ V. T. 332, N. 5.

18) $\int l\left\{\frac{1+2p\,Cos\,x+p^2}{1-2p\,Cos\,x+p^2}\right\}.Sin\{(2a+1)x\}\,dx = 2\pi p^{2a+1}\frac{(-1)^a}{2a+1}$ (VIII, 277).

F. Log. de Circ. Dir.; Circ. Dir. rat. fract. | TABLE 331. | Lim. 0 et π.

1) $\int l(1 \pm p\,Cos\,x)\frac{dx}{Cos\,x} = \pm\pi\,Arcsin\,p\,[p^2<1]$ (VIII, 357).

2) $\int l\left\{\frac{1+Sin\,x}{1+Cos\,\lambda.Sin\,x}\right\}\frac{dx}{Sin\,x} = \lambda^2$ V. T. 134, N. 15.

3) $\int l(1-2p\,Cos\,x+p^2)\,\frac{dx}{Cos\,x}=\infty\,[p^2\leqq 1]$ (VIII, 563).

4) $\int l(1-2p\,Cos\,2x+p^2)\,\frac{dx}{Sin\,x}=0$ V. T. 321, N. 17.

5) $\int l\left\{\frac{1+2p\,Cos\,2x+p^2}{1+2p\,Cos\,ax+p^2}\right\}\frac{dx}{Tg\,x}=0$ (IV, 463).

6) $\int l\,Sin\,x\,\frac{dx}{p+q\,Cos\,x}=\frac{\pi}{\sqrt{p^2-q^2}}\,l\frac{\sqrt{p^2-q^2}}{p+\sqrt{p^2-q^2}}\,[0<p>q]$ (VIII, 274).

7) $\int l(-r+p\,Cos\,x)\,\frac{Cos\,x}{1-q\,Cos^2x}\,dx=\frac{\pi}{\sqrt{q(1-q)}}\,l\frac{p\sqrt{q}-\{1-\sqrt{1-q}\}\{r+\sqrt{r^2-p^2}\}}{p\sqrt{q}+\{1-\sqrt{1-q}\}\{r+\sqrt{r^2-p^2}\}}$

V. T. 145, N. 22.

8) $\int l\,Sin\,x\,\frac{dx}{1-2p\,Cos\,x+p^2}=\frac{\pi}{1-p^2}\,l\frac{1-p^2}{2}\,[p^2<1],=\frac{\pi}{p^2-1}\,l\frac{p^2-1}{2p^2}\,[p^2>1]$

V. T. 321, N. 1, 8.

9) $\int l\,Sin\,x\,\frac{Cos\,x}{1-2p\,Cos\,x+p^2}\,dx=\frac{\pi}{2p}\,\frac{1+p^2}{1-p^2}\,l(1-p^2)-\frac{p\pi}{1-p^2}\,l2\,[p^2<1],=$

$=\frac{\pi}{2p}\,\frac{p^2+1}{p^2-1}\,l\frac{p^2-1}{p^2}-\frac{p\pi}{p^2-1}\,l2\,[p^2>1]$ V. T. 321, N. 2, 9.

10) $\int l\,Sin\,rx\,\frac{dx}{1-2p\,Cos\,x+p^2}=\frac{\pi}{1-p^2}\,l\frac{1-p^{2r}}{2}$

11) $\int l\,Cos\,rx\,\frac{dx}{1-2p\,Cos\,x+p^2}=\frac{\pi}{1-p^2}\,l\frac{1+p^{2r}}{2}$

12) $\int l\,Tg\,rx\,\frac{dx}{1-2p\,Cos\,x+p^2}=\frac{\pi}{1-p^2}\,l\frac{1-p^{2r}}{1+p^{2r}}$

Dans 10) à 12) on a $p^2<1$. Voyez Svanberg, N. Act. Ups. 10, 231.

13) $\int l\,Sin\,x\,\frac{dx}{1-2p\,Cos\,2x+p^2}=\frac{\pi}{1-p^2}\,l\frac{1-p}{2}\,[p<1],=\frac{\pi}{p^2-1}\,l\frac{p-1}{2p}\,[p>1]$

V. T. 321, N. 1.

14) $\int l\,Sin\,x\,\frac{Cos\,x}{1-2p\,Cos\,2x+p^2}\,dx=0\,[p>0]$ V. T. 346, N. 6.

15) $\int l\,Sin\,x\,\frac{Cos\,2x}{1-2p\,Cos\,2x+p^2}\,dx=\frac{\pi}{2p(1-p^2)}\,\{(1+p^2)\,l(1-p)-2p^2\,l2\}\,[p<1],=$

$=\frac{\pi}{2p(p^2-1)}\left\{(1+p^2)\,l\frac{p-1}{p}-2\,l2\right\}[p>1]$ V. T. 321, N. 1, 2.

F. Log. de Circ. Dir.; Circ. Dir. rat. fract. — TABLE 331, suite. — Lim. 0 et π.

16) $\int l\,Sin\,x \frac{Cos^2 x}{1-2p\,Cos\,2x+p^2}\,dx = \frac{\pi}{4p}\frac{1+p}{1-p}\,l(1-p) - \frac{\pi}{2(1-p)}\,l2\ [p<1], =$

$= \frac{\pi}{4p}\frac{p+1}{p-1}\,l\frac{p-1}{p} - \frac{\pi}{2(p-1)}\,l2\ [p>1]$ V. T. 321, N. 2.

17) $\int l\,Sin\,x \frac{Cos\,2x-p}{1-2p\,Cos\,2x+p^2}\,dx = \frac{\pi}{2p}\,l(1-p)\ [p<1], = \frac{\pi}{2p}\,l\frac{4p}{p-1}\ [p>1]$ V. T. 346, N. 9.

18) $\int l\,Sin\,r\,x \frac{dx}{1-2p\,Cos\,2x+p^2} = \frac{\pi}{1-p^2}\,l\frac{1-p^r}{2}\ [p<1]$ V. T. 331, N. 10.

19) $\int l\,Sin\,r\,x \frac{Cos\,x}{1-2p\,Cos\,2x+p^2}\,dx = 0\ [p<1]$ V. T. 331, N. 10.

20) $\int l\,Cos\,x \frac{Cos\,2x-p}{1-2p\,Cos\,2x+p^2}\,dx = \frac{\pi}{2p}\,l(1+p)\ [p<1]$ V. T. 331, N. 17, 23.

21) $\int l\,Cos\,r\,x \frac{dx}{1-2p\,Cos\,2x+p^2} = \frac{\pi}{1-p^2}\,l\frac{1+p^r}{2}\ [p<1]$ V. T. 331, N. 11.

22) $\int l\,Cos\,r\,x \frac{Cos\,x}{1-2p\,Cos\,2x+p^2}\,dx = 0\ [p<1]$ V. T. 331, N. 11.

23) $\int l\,Tg\,x \frac{Cos\,2x-p}{1-2p\,Cos\,2x+p^2}\,dx = \frac{\pi}{2p}\,l\frac{1-p}{1+p}\ [p<1]$ V. T. 346, N. 1.

24) $\int l\,Tg\,r\,x \frac{dx}{1-2p\,Cos\,2x+p^2} = \frac{\pi}{1-p^2}\,l\frac{1-p^r}{1+p^r}\ [p<1]$ V. T. 331, N. 12.

25) $\int l\,Tg\,r\,x \frac{Cos\,x}{1-2p\,Cos\,2x+p^2}\,dx = 0\ [p<1]$ V. T. 331, N. 12.

26) $\int l(1-2p\,Cos\,x+p^2)\frac{dx}{1-2q\,Cos\,x+q^2} = \frac{2\pi}{1-q^2}\,l(1-pq)\ [p^2 \leq 1, q^2<1]$ (VIII, 560).

F. Logarithmique; Circul. Directe. — TABLE 332. — Lim. 0 et 2π.

1) $\int l(1-2p\,Cos\,x+p^2).dx = 0\ [p^2<1]$ V. T. 330, N. 5.

2) $\int l(1+p\,Sin\,x+q\,Cos\,x).dx = 2\pi\,l\frac{1+\sqrt{1-p^2-q^2}}{2}\ [p^2+q^2<1]$ (VIII, 429).

3) $\int l(1+p^2+q^2+2p\,Sin\,x+2q\,Cos\,x).dx = 0\ [p^2+q^2 \leq 1], = 2\pi\,l(p^2+q^2)\ [p^2+q^2 \geq 1]$ (VIII, 429).

4) $\int l(1-2p\,Cos\,x+p^2).Sin\,ax.Sin\,x\,dx=\pi\left(\frac{p^{a+1}}{a+1}-\frac{p^{a-1}}{a-1}\right)\,[p^2<1]$ V. T. 332, N. 5.

5) $\int l(1-2p\,Cos\,x+p^2).Cos\,ax\,dx=-\frac{2\pi}{a}p^a\,[p^2<1]$ V. T. 330, N. 11.

6) $\int l(1-2p\,Cos\,x+p^2).Cos\,ax.Cos\,x\,dx=-\pi\left(\frac{p^{a+1}}{a+1}+\frac{p^{a-1}}{a-1}\right)[p^2<1]$ V. T. 332, N. 5.

7) $\int l(1-2p\,Cos\,bx+p^2).Cos\,ax\,dx=0\left[\frac{b}{a}\text{ fractionn.}\right]$ (IV, 465).

8) $\int l\left\{\frac{1+Cos\,x}{1+Cos\,bx}\right\}.Cos\,ax\,dx=2\pi\left(\frac{(-1)^{a-1}}{a}+(-1)^{\frac{a}{b}}\frac{b}{a}\right)$ (IV, 465).

9) $\int l\left\{\frac{1-2p\,Cos\,x+p^2}{1-2p\,Cos\,bx+p^2}\right\}.Cos\,ax\,dx=2\pi\left(\frac{b}{a}p^{\frac{a}{b}}-\frac{1}{a}p^a\right)[p^2\leqq1],=2\pi\left(\frac{b}{a}p^{-\frac{a}{b}}-\frac{1}{ap^a}\right)[p^2\geqq1]$ (IV, 465).

10) $\int l\,Sin\,x\,\frac{Cos\,x-p}{1-2p\,Cos\,x+p^2}\,dx=\frac{\pi}{p}\,l(1-p^2)\,[p^2<1],=\frac{\pi}{p}\,l\frac{4p^2}{p^2-1}\,[p^2>1]$ V. T. 346, N. 3.

F. Logarithmique; Circul. Directe. TABLE 333. Lim. 0 et $p\pi$.

1) $\int_0^{2a\pi}l((\pm Sin\,x)).dx=-2a\pi\,l2+(4\alpha+1)a\,\pi^2 i$ (VIII, 281).

2) $\int_0^{(2a+1)\pi}l((+Sin\,x)).dx=-(2a+1)\pi\,l2+\left\{(2a+1)2\alpha+a\right\}\pi^2 i$ (VIII, 281).

3) $\int_0^{(2a+1)\pi}l((-Sin\,x)).dx=-(2a+1)\pi\,l2+\left\{(2a+1)2\alpha+a+1\right\}\pi^2 i$ (VIII, 281).

4) $\int_0^{(2a+\frac{1}{2})\pi}l((+Sin\,x)).dx=-\left(2a+\frac{1}{2}\right)\pi\,l2-(4a+1)\alpha\,\pi^2 i$ (VIII, 284).

5) $\int_0^{(2a+\frac{1}{2})\pi}l((-Sin\,x)).dx=-\left(2a+\frac{1}{2}\right)\pi\,l2-\left\{(4a+1)\alpha-\frac{1}{2}\right\}\pi^2 i$ (VIII, 284).

6) $\int_0^{(2a-\frac{1}{2})\pi}l((+Sin\,x)).dx=-\left(2a-\frac{1}{2}\right)\pi\,l2-\left\{(4a-1)\alpha-\frac{1}{2}\right\}\pi^2 i$ (VIII, 284).

7) $\int_0^{(2a-\frac{1}{2})\pi}l((-Sin\,x)).dx=-\left(2a-\frac{1}{2}\right)\pi\,l2-(4a-1)\alpha\,\pi^2 i$ (VIII, 284).

8) $\int_0^{2a\pi} l((\pm Cos\,x)).dx = -2a\pi\, l2 - 4a\alpha\pi^2 i$ (VIII, 283).

9) $\int_0^{(2a+1)\pi} l((+Cos\,x)).dx = -(2a+1)\pi\, l2 - \frac{1}{2}\{(2a+1)(4\alpha-1)+2a\}\pi^2 i$ (VIII, 283).

10) $\int_0^{(2a+1)\pi} l((-Cos\,x)).dx = -(2a+1)\pi\, l2 - \frac{1}{2}\{(2a+1)(4\alpha-1)+2a+2\}\pi^2 i$ (VIII, 283).

11) $\int_0^{(2a\pm\frac{1}{2})\pi} l((+Cos\,x)).dx = -\left(2a\pm\frac{1}{2}\right)\pi\, l2 + \{(4a\pm1)\alpha+a\}\pi^2 i$ (VIII, 284).

12) $\int_0^{(2a\pm\frac{1}{2})\pi} l((-Cos\,x)).dx = -\left(2a\pm\frac{1}{2}\right)\pi\, l2 + \left\{(4a\pm1)\alpha+a\pm\frac{1}{2}\right\}\pi^2 i$ (VIII, 284).

13) $\int_0^{a\pi} l(1-2p\,Cos\,x+p^2).dx = 0\,[p^2<1], = 2a\pi\, lp\,[p^2>1]$ (VIII, 259*).

14) $\int_0^{\frac{1}{4}a\pi} l\,Tg^2\left(\frac{\pi}{4}\pm x\right)\frac{Sin\,2x}{1-q^2\,Cos^2\,2x}dx = \pm\frac{a\pi}{2q}Arcsin\,q\,[q<1]$ V. T. 333, N. 15.

15) $\int_0^{\frac{1}{2}a\pi} l\left\{\frac{1+q\,Cos\,x}{1-q\,Cos\,x}\right\}\frac{dx}{Cos\,x} = a\pi\,Arcsin\,q\,[q<1]$ (IV, 469).

F. Logarithmique; Circulaire Directe. TABLE 334. Lim. 0 et λ.

1) $\int l\left\{Cos\,x+\sqrt{Cos^2 x - Sinhp^2(\frac{1}{2}\pi-\lambda)}\right\}.dx = -\lambda\, l\,Sinhp\left(\frac{1}{2}\pi-\lambda\right)$ (IV, 469*).

2) $\int l\{Cos\,x+\sqrt{Cos^2 x - Cos^2\lambda}\}.dx = \left(\lambda-\frac{1}{2}\pi\right) l\,Cos\,\lambda$ (IV, 469).

3) $\int l\left\{\frac{Sin\,\lambda+Sin\,\mu.Cos\,x.\sqrt{Sin^2\lambda-Sin^2 x}}{Sin\,\lambda-Sin\,\mu.Cos\,x.\sqrt{Sin^2\lambda-Sin^2 x}}\right\}.dx = \pi\, l\left\{Tg\frac{1}{2}\mu.Sin\,\lambda+\sqrt{Tg^2\frac{1}{2}\mu.Sin^2\lambda+1}\right\}$ (IV, 470).

4) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}\frac{Cot\,x}{\sqrt{Sin^2\lambda-Sin^2 x}}dx = \pi\lambda\,Cosec\,\lambda$ (IV, 470).

5) $\int\left\{l\left(\frac{1+Sin\,x}{1-Sin\,x}\right)-2\,Sin\,x\right\}\frac{Cos\,x}{Sin^2 x.\sqrt{Sin^2\lambda-Sin^2 x}}dx = 2\,Cosec\,\lambda.(1-\lambda\,Cot\,\lambda)$ (IV, 470).

6) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}\frac{Sin\,x.Cos\,x}{\sqrt{Sin^2\lambda-Sin^2 x}}dx = \pi(1-Cos\,\lambda)$ (IV, 470).

7) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}\frac{Tg\,x}{\sqrt{Sin^2\lambda-Sin^2 x}}\,dx=\pi\,Sec\,\lambda\,.\,l\,Sec\,\lambda$ (IV, 470).

8) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}\frac{Tg^3 x}{\sqrt{Sin^2\lambda-Sin^2 x}}\,dx=\frac{\pi}{4}\,Sin^2\lambda\,.\,Sec^3\lambda-\frac{\pi}{2}\,Sec^3\lambda\,.\,l\,Cos\,\lambda$ (IV, 470).

9) $\int\left\{l\left(\frac{1+Sin\,x}{1-Sin\,x}\right)-2\,Sin\,x\right\}\frac{Cos\,x}{Sin^3 x\,.\,\sqrt{Sin^2\lambda-Sin^2 x}}\,dx=\frac{\pi}{2}\,Cosec^3\lambda\,.\,(\lambda-Sin\,\lambda\,.\,Cos\,\lambda)$ (IV, 470).

F. Logarithmique; Circulaire Directe. TABLE 335. Lim. λ et $\frac{1}{2}\pi$.

1) $\int l\left(Cot\frac{1}{2}x\right)\frac{Sin\,x\,.\,Cos\,x}{1-Cos^2\lambda\,.\,Cos^2 x}\frac{dx}{\sqrt{Sin^2 x-Sin^2\mu}}=\frac{\pi}{Sin\,2\lambda}\,Sin\left(Arctg\frac{Tg\,\lambda}{Sin\,\mu}\right).$

$l\left\{Tg\frac{1}{2}\lambda\,.\,Cot\left(\frac{1}{2}\,Arctg\frac{Tg\,\lambda}{Sin\,\mu}\right)\right\}$ (IV, 470).

2) $\int l\left(Cot\frac{1}{2}x\right)\frac{Sin\,x\,.\,Cos\,x}{Sin^2 x-Sin^2\mu}\frac{dx}{\sqrt{Sin^2 x-Sin^2\lambda}}=\frac{\pi}{2}\,Cosec\,\lambda\,.\,Sec\,\varphi\,.\,l\left(Cot\frac{1}{2}\varphi\,.\,Tg\frac{1}{2}\mu\right)\left[Sin\,\varphi=\frac{Sin\,\mu}{Sin\,\lambda}\right]$

(IV, 470).

3) $\int l\left(Cot\frac{1}{2}x\right)\frac{Sin\,x\,.\,Cos\,x}{Sin^2\lambda+Tg^2\mu\,.\,Sin^2 x}\frac{dx}{\sqrt{Sin^2 x-Sin^2\lambda}}=\frac{\pi\,Cos^2\mu}{2\,Sin\,\lambda\,.\,Sin\,\mu}\,l\frac{Sin\,\mu+\sqrt{1-Cos^2\lambda\,.\,Cos^2\mu}}{Sin\,\mu\,.\,(1+Sin\,\lambda)}$

(IV, 470).

4) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}\frac{dx}{\sqrt{Sin^2 x-Sin^2\lambda}}=\pi\,F'(Sin\,\lambda)$ (IV, 470).

5) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}.\sqrt{Sin^2 x-Sin^2\lambda}\,\frac{dx}{Sin^2 x}=-\pi\,Sin\,\lambda+\pi\,E'(Sin\,\lambda)$ (IV, 471).

6) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}\frac{Cos^2 x}{\sqrt{Sin^2 x-Sin^2\lambda}}\,dx=-\pi+\pi\,E'(Sin\,\lambda)$ (IV, 471).

7) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}\frac{Sin^4 x-Sin^4\lambda}{\sqrt{Sin^2 x-Sin^2\lambda}}\frac{dx}{Sin^2 x}=\pi(1-Sin\,\lambda)$ (IV, 471).

8) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}.\sqrt{Sin^2 x-Sin^2\lambda}\,dx=\pi+\pi\,Cos^2\lambda\,.\,F'(Sin\,\lambda)-\pi\,E'(Sin\,\lambda)$ (IV, 471*).

9) $\int l\left(Cot\frac{1}{2}x\right)\frac{Sin\,x\,.\,Cos\,x}{Sin^2\lambda\,.\,Cos^2\mu+Sin^2\mu\,.\,Sin^2 x}\frac{dx}{\sqrt{Sin^2 x-Sin\;\lambda}}=\frac{1}{Sin\,\lambda\,.\,Sin\,\mu}$

$\left\{l\,Sin\,\lambda+\frac{\pi}{2}\,l\frac{Sin\,\mu+\sqrt{1-Cos^2\lambda\,.\,Cos^2\mu}}{1+Sin\,\mu}\right\}$ (IV, 471).

F. Logarithmique; Circulaire Directe. — **TABLE 335, suite.** — Lim. λ et $\frac{1}{2}\pi$.

10) $\int l\left\{\frac{Sin\,x+\sqrt{Sin^2 x-Sin^2\lambda}}{Sin\,x-\sqrt{Sin^2 x-Sin^2\lambda}}\right\}\frac{dx}{1-Cos^2\mu\,.\,Cos^2 x}=\pi\,Cosec\,\mu\,.\,l\,\frac{Sin\,\mu+\sqrt{1-Cos^2\lambda\,.\,Cos^2\mu}}{(1+Sin\,\mu)\,Sin\,\lambda}$ (IV, 471*).

11) $\int l\left\{Sin\,x+\sqrt{Sin^2 x-Sin^2\lambda}\right\}\frac{dx}{1-Cos^2\mu\,.\,Cos^2 x}=Cosec\,\mu.\left\{-Arctg\left(\frac{Tg\,\lambda}{Sin\,\mu}\right).\,l\,Sin\,\lambda-\frac{\pi}{2}\right.$
$\left.l\,\frac{1+Sin\,\mu}{Sin\,\mu+\sqrt{1-Cos^2\lambda\,.\,Cos^2\mu}}\right\}$ (IV, 471).

F. Logarithmique; Circ. Dir. $[c=Sin\,\lambda\,.\,Cosec\,\mu]$. — **TABLE 336.** — Lim. λ et μ.

1) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}\frac{Cos\,x}{\sqrt{(Sin^2 x-Sin^2\lambda)(Sin^2\mu-Sin^2 x)}}dx=\pi\,Cosec\,\mu\,.\,\mathrm{F}(c,\mu)$ V. T. 366, N. 10.

2) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}\frac{Cos\,x}{\sqrt{(Sin^2 x-Sin^2\lambda)(Sin^2\mu-Sin^2 x)}}\frac{dx}{Sin^2 x}=\frac{\pi}{Sin\,\lambda\,.\,Sin\,\mu}+\frac{\pi}{Sin^2\lambda\,.\,Sin\,\mu}$
$\mathrm{F}(c,\mu)-\frac{\pi}{Sin^2\lambda\,.\,Sin\,\mu}\mathrm{E}(c,\mu)$ (IV, 472).

3) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}\frac{Cos\,x}{Sin^2 x}\sqrt{\frac{Sin^2\mu-Sin^2 x}{Sin^2 x-Sin^2\lambda}}dx=\pi\,Sin\,\mu\,.\,Cosec\,\lambda+\pi\,\frac{Sin^2\mu-Sin^2\lambda}{Sin^2\lambda:Sin^2\mu}\mathrm{F}(c,\mu)-$
$-\frac{\pi}{Sin^2\lambda}Sin\,\mu\,\mathrm{E}(c,\mu)$ (IV, 472).

4) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}\frac{Cos\,x}{Sin^2 x}\sqrt{\frac{Sin^2 x-Sin^2\lambda}{Sin^2\mu-Sin^2 x}}dx=-\pi\,Sin\,\lambda.Cosec\,\mu+\pi\,Cosec\,\mu\,.\,\mathrm{E}(c,\mu)$ (IV, 472).

5) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}\frac{Cos\,x\,.\,Sin^2 x}{\sqrt{(Sin^2 x-Sin^2\lambda)(Sin^2\mu-Sin^2 x)}}dx=\pi(1-Cos\,\lambda.Cos\,\mu)+\pi\,Sin\,\mu.\mathrm{F}(c,\mu)-$
$-\pi\,Sin\,\mu\,.\,\mathrm{E}'(c,\mu)$ (IV, 472).

6) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}.Cos\,x.\sqrt{\frac{Sin^2\mu-Sin^2 x}{Sin^2 x-Sin^2\lambda}}dx=\pi(Cos\,\lambda\,.\,Cos\,\mu-1)+\pi\,Sin\,\mu\,.\,\mathrm{E}(c,\mu)$ (IV, 472).

7) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}.Cos\,x.\sqrt{\frac{Sin^2 x-Sin^2\lambda}{Sin^2\mu-Sin^2 x}}dx=\pi(1-Cos\,\lambda.Cos\,\mu)+\frac{Sin^2\mu-Sin^2\lambda}{Sin\,\mu}\pi\,\mathrm{F}(c,\mu)-$
$-\pi\,Sin\,\mu\,.\,\mathrm{E}(c,\mu)$ (IV, 473).

8) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}\frac{dx}{Cos\,x.\sqrt{(Sin^2 x-Sin^2\lambda)(Sin^2\mu-Sin^2 x)}}=\pi\,Cosec\,\mu\,.\,\Pi(-Sin^2\lambda,c,\mu)+$
$+\frac{1}{2}\pi\,Sec\,\lambda\,.\,Sec\,\mu\,.\,l\left\{1+Tg^2\lambda+Tg^2\mu\right\}$ (IV, 473).

9) $\int l \left\{\frac{1+Sin\,x}{1-Sin\,x}\right\} \frac{dx}{Cos^2 x . \sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{\pi}{4} \frac{Sin^2\lambda . Cos^2\mu + Sin^2\mu . Cos^2\lambda}{Cos^2\lambda . Cos^2\mu} -$

$- \frac{1}{2}\pi\, Cosec\mu . Sec^2\lambda . \mathrm{F}(c,\mu) - \frac{\pi\, Sin\mu}{2\,Cos^2\lambda . Cos^2\mu} \mathrm{E}(c,\mu) + \frac{Cos^2\lambda + Cos^2\mu + Cos^2\lambda . Cos^2\mu}{Cos^2\lambda . Cos^2\mu}$

$\left\{\frac{\pi}{2} Cosec\mu . \Pi(-Sin^2\lambda, c, \mu) + \frac{\pi}{4} Sec\lambda . Sec\mu . l(1 + Tg^2\lambda + Tg^2\mu)\right\}$ (IV, 473).

10) $\int \left\{\frac{1+q\,Sin\,x}{1-q\,Sin\,x}\right\} \frac{Cos\,x}{\sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} dx = \pi\, Cosec\mu . \mathrm{F}\left\{\frac{Sin\lambda}{Sin\mu}, Arcsin(q\,Sin\mu)\right\}$

$[q<1]$ (VIII, 311).

1) $\int_0^\infty l(1 + 2p\,Cos\,x + p^2) . dx = 0\ [p<1], = \infty\ [p \geqq 1]$ (IV, 402).

2) $\int_0^\infty l(1 + 2p\,Sin\,x + p^2) . dx = \sum_0^\infty \frac{1}{2n+1} \frac{2^{n/2}}{3^{n/2}} \left(\frac{2p}{1+p^2}\right)^{2n+1}$ $[p \leqq 1]$ (IV, 402).

3) $\int_0^\infty l\left(1 + \frac{p^2}{x^2}\right) . Cos\,rx\,dx = \frac{\pi}{r}(1 - e^{-pr})$ (IV, 402).

4) $\int_0^\infty l\left(\frac{x^2}{p^2+x^2}\right) . Cos\,rx\,dx = \frac{\pi}{r}(e^{-pr} - 1)$ V. T. 337, N. 3.

5) $\int_0^\infty l\left(\frac{p^2+x^2}{q^2+x^2}\right) . Cos\,rx\,dx = \frac{\pi}{r}(e^{-qr} - e^{-pr})$ V. T. 337, N. 3.

6) $\int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi} l\,Cos\,x . Cos^p x . Cos\,px\,dx = -\frac{\pi}{2^p} l2$ V. T. 485, N. 13.

7) $\int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi} l(p\,Sin\,x - r) \frac{Sin\,x}{1 - q\,Sin^2 x} dx = \frac{\pi}{\sqrt{q(1-q)}} l \frac{p\sqrt{q} - \{1 - \sqrt{1-q}\}\{r + \sqrt{r^2 - p^2}\}}{p\sqrt{q} + \{1 - \sqrt{1-q}\}\{r + \sqrt{r^2 - p^2}\}}$

V. T. 145, N. 22.

8) $\int_0^{Arccos(Tghp\lambda . Cothp\mu)} l \left\{\frac{1 - Coshp\lambda . Coshp\mu . Cos\,x . \sqrt{1 - Cothp^2\lambda . Tanghp^2\mu . Cos^2 x}}{1 + Coshp\lambda . Coshp\mu . Cos\,x . \sqrt{1 - Cothp^2\lambda . Tanghp^2\mu . Cos^2 x}}\right\} . dx =$

$= \pi\, l \frac{Sinhp\mu . (1 + Sinhp\lambda)}{Sinhp\lambda + \sqrt{1 - Coshp^2\lambda . Coshp^2\mu}}$ (IV, 474).

1) $\int_0^{2a\pi} l\,Sin\,\frac{x}{4a}\,.\,Cos\,\frac{bkx}{a}\,dx=\frac{2a\pi}{k}\sum_1^{k-1} Cos\,2bn\pi\,.\,l\,Sin\,\frac{n\pi}{2k}$ (IV, 469*).

2) $\int_0^a l(1-q\,Cos\,x)\,\frac{Cos\,kx}{Cos\,x}\,dx=0$ (IV, 473).

3) $\int_0^a l(1-2p\,Cos\,x+p^2)\,\frac{Cos\,2kx}{Cos\,x}\,dx=0\;\left[0<a<\frac{1}{2}\pi\right],=\infty\;\left[\frac{1}{2}\pi<a<\infty\right]$ (VIII, 379).

4) $\int_0^a l(1-2p\,Cos\,x+p^2)\,\frac{Cos\,\{(4k\pm1)x\}}{Cos\,x}\,dx=\pm\frac{\pi}{2}\,l(1+p^2)\;\left[a=\frac{1}{2}\pi\right],=\pm\pi\,l(1+p^2)$
$\left[\frac{1}{2}\pi<a<\frac{3}{2}\pi\right],=\pm\frac{3\pi}{2}\,l(1+p^2)\;\left[a=\frac{3}{2}\pi\right],=\pm\frac{2b-1}{2}\pi\,l(1+p^2)$
$\left[a=\frac{2b-1}{2}\pi\right],=\pm b\pi\,l(1+p^2)\;\left[a=\frac{2b-1}{2}\pi+c,\,c<\pi\right],=\infty\,[a=\infty]$
(VIII, 379).

F. Logarithmique; Circulaire Inverse. TABLE 339. Lim. 0 et 1.

1) $\int Arcsin\,x\,.\,lx\,.\,dx=2-l2-\frac{1}{2}\pi$ V. T. 118, N. 4 et T. 76, N. 1.

2) $\int Arccos\,x\,.\,lx\,.\,dx=l2-2$ V. T. 118, N. 4 et T. 76, N. 2.

3) $\int Arctg\,x\,.\,lx\,.\,dx=\frac{1}{2}l2-\frac{\pi}{4}+\frac{1}{48}\pi^2$ V. T. 108, N. 1 et T. 76, N. 3.

4) $\int Arccot\,x\,.\,lx\,.\,dx=-\frac{1}{48}\pi^2-\frac{\pi}{4}-\frac{1}{2}l2$ V. T. 108, N. 1 et T. 76, N. 4.

5) $\int Arctg\,x\,.(lx)^2\,.(lx+3)\,dx=\frac{7}{1920}\pi^4$ V. T. 109, N. 9.

6) $\int Arctg\,x\,.(lx)^4\,.(lx+5)\,dx=\frac{31}{16128}\pi^6$ V. T. 109, N. 20.

7) $\int Arctg\,x\,.(lx)^{a-1}\,.(lx+a)\,dx=\frac{1^{a/1}}{(-2)^{a+1}}\sum_0^\infty\frac{(-1)^n}{(n+1)^{a+1}}$ V. T. 110, N. 3.

8) $\int Arccos\,x\,\frac{dx}{lx}=-\sum_0^\infty\frac{1^{n/2}}{2^{n/2}}\,\frac{l(2n+2)}{2n+1}$ (VIII, 278).

9) $\int (Arccos\,x)^2\,\frac{dx}{lx}=-\sum_1^\infty\frac{2^{n/2}}{3^{n/2}}\,\frac{l(2n+1)}{n}$ (VIII, 278).

10) $\int Arctg\,x\,.\,l(1+x^2)\,.\,dx=\frac{\pi}{4}l2-\frac{\pi}{2}+l2+\frac{1}{16}\pi^2-\frac{1}{4}(l2)^2$ V. T. 232, N. 9.

1) $\int_0^1 li\left(\frac{1}{x}\right).\left(l\frac{1}{x}\right)^{p-1}.dx = -\pi\, Cot p\pi.\Gamma(p)$ (VIII, 542).

2) $\int_0^1 l\Gamma(x).dx = \frac{1}{2}l2\pi$ (VIII, 271). 3) $\int_0^1 l\Gamma(1+x).dx = -1+\frac{1}{2}l2\pi$ V. T. 340, N. 5.

4) $\int_0^1 l\Gamma(1-x).dx = \frac{1}{2}l2\pi$ (VIII, 271). 5) $\int_0^1 l\Gamma(x+q)dx = \frac{1}{2}l2\pi + q\,lq - q$ (VIII, 322).

6) $\int_0^{\frac{1}{2}\pi} l\Theta(q,x).dx = \frac{\pi}{4}l\left\{\frac{1}{\pi}F'(p).(2p)^{\frac{1}{3}}\sqrt{1-p^2}^{\frac{1}{3}}e^{\frac{\pi}{6}\frac{F'[\sqrt{(1-p^2)}]}{F'(p)}}\right\}$ (IV, 475).

7) $\int_p^{p+1} l\Gamma(x).dx = \frac{1}{2}l2\pi + p(lp-1)$ V. T. 340, N. 5.

8) $\int_0^\infty li\left(\frac{1}{x}\right).(lx)^{p-1}.dx = -\pi\, Sin p\pi.\Gamma(p)$ (VIII, 542).

9) $\int_1^\infty li\left(\frac{1}{x}\right).(lx)^{p-1}.dx = -\frac{\pi}{Sin p\pi}\Gamma(p)$ (VIII, 542).

F. Circ. Dir. ent.; Circ. Inverse. TABLE 341. Lim. 0 et $\frac{\pi}{2}$.

1) $\int Arctg(Tang^2 x).dx = \frac{1}{8}\pi^2$ V. T. 252, N. 10.

2) $\int Arctg(Tang^3 x).dx = \frac{1}{8}\pi^2$ V. T. 252, N. 11.

3) $\int Arccot(Tang^2 x).dx = \frac{1}{8}\pi^2$ V. T. 252, N. 18.

4) $\int Arccot(Tang^3 x).dx = \frac{1}{8}\pi^2$ V. T. 252, N. 19.

5) $\int Arcsin(p\, Sin x).Cos x\, dx = Arcsin p + \frac{1}{p}\sqrt{1-p^2} - \frac{1}{p}$ V. T. 76, N. 1.

6) $\int Arctg(p\, Cot x).Tg x\, dx = \frac{\pi}{2}l(1+p)$ V. T. 250, N. 3.

7) $\int Arctg(p\, Tg x).Tg 2x\, dx = \frac{\pi}{4}l\frac{1+p^2}{(1+p)^2}$ V. T. 342, N. 4, 8.

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8) $\int Arctg\,(p\,Cot\,x).Tg\,2x\,dx = \frac{\pi}{4}\,l\,\frac{(1+p)^2}{1+p^2}$ V. T. 248, N. 5.

9) $\int Arccot\,(p\,Tg\,x).Tg\,x\,dx = \frac{\pi}{2}\,l\,\frac{1+p}{p}$ V. T. 248, N. 8.

10) $\int Arctg\left(\frac{1}{q}\sqrt{Tg\,x}\right)\frac{dx}{(Sin\,x+p^2\,Cos\,x)^2} = \frac{\pi}{2p(p+q)}$ V. T. 252, N. 12.

11) $\int Arccot\left(\frac{1}{q}\sqrt{Tg\,x}\right)\frac{dx}{(Sin\,x+p^2\,Cos\,x)^2} = \frac{q\pi}{2p^2(p+q)}$ V. T. 252, N. 20.

12) $\int Arctg\,\{Tg\,\lambda.\sqrt{1-p^2\,Sin^2\,x}\}.\sqrt{1-p^2\,Sin^2\,x}\,dx = \frac{\pi}{2}\,\mathrm{E}(p,\lambda) - \frac{\pi}{2}\,Cot\,\lambda.\{1-\sqrt{1-p^2\,Sin^2\,\lambda}\}$ (VIII, 309*).

13) $\int Arccot\{Tg\,\lambda.\sqrt{1-p^2\,Sin^2\,\lambda}\}.\sqrt{1-p^2\,Sin^2\,x}\,dx = \frac{\pi}{2}\,\mathrm{E}\,[p, Arccot\{Tg\,\lambda.\sqrt{1-p^2}\}] - \frac{\pi}{2}\,Cot\,\lambda.\left\{\frac{1}{\sqrt{1-p^2\,Sin^2\,\lambda}}-1\right\}$ (VIII, 309*).

14) $\int Arctg\left\{\frac{p\,Sin\,(r\,Tg\,x)}{1+p\,Cos\,(r\,Tg\,x)}\right\}.Tg\,x\,dx = \frac{\pi}{2}\,l(1+pe^{-r})$ V. T. 446, N. 8.

F. Circ. Dir. en dén. monôme;
Circ. Inverse à un facteur. TABLE 342. Lim. 0 et $\frac{\pi}{2}$.

1) $\int Arctg\,(p\,Sin\,x)\frac{dx}{Sin\,x} = \frac{\pi}{2}\,l\{p+\sqrt{1+p^2}\}$ $[p \geqq 1]$ V. T. 244, N. 11.

2) $\int Arctg\,(p\,Cos\,x)\frac{dx}{Cos\,x} = \frac{\pi}{2}\,l\{p+\sqrt{1+p^2}\}$ $[p \geqq 1]$ V. T. 244, N. 11.

3) $\int Arctg\,(p\,Cot\,x)\frac{Tg\,x}{Cos\,2x}\,dx = -\frac{\pi}{4}\,l(1+p^2)$ V. T. 248, N. 10.

4) $\int Arctg\,(p\,Tg\,x)\frac{dx}{Tg\,x} = \frac{\pi}{2}\,l(1+p)$ (VIII, 612).

5) $\int Arctg\left\{\frac{p\,Sin\,(r\,Cot\,x)}{1+p\,Cos\,(r\,Cot\,x)}\right\}\frac{dx}{Tg\,x} = \frac{\pi}{2}\,l(1+pe^{-r})$ V. T. 446, N. 8.

6) $\int Arctg\,(p\,Tg\,x)\frac{Cos^2\,x}{Sin\,x.\,Cos\,2x}\,dx = \frac{\pi}{8}\,l\{(1+p)^2(1+p^2)\}$ V. T. 342, N. 4, 8.

7) $\int Arctg(p\,Cot\,x)\frac{Sin^3 x\,dx}{Cos\,x\,.\,Cos\,2x} = -\frac{\pi}{8}\,l\{(1+p^2)(1+p)^2\}$ V. T. 341, N. 6 et T. 342, N. 3.

8) $\int Arctg(p\,Tg\,x)\frac{dx}{Tg\,x\,.\,Cos\,2x} = \frac{\pi}{4}\,l(1+p^2)$ V. T. 248, N. 10.

9) $\int \{Arctg((p\,Tg\,x)) - Arctg((q\,Tg\,x))\}\frac{dx}{Sin\,2x} = \frac{\pi}{4}\,l\frac{p}{q}$ V. T. 247, N. 4.

10) $\int \{Arctg((r+p\,Tg\,x)) - Arctg((r+q\,Tg\,x))\}\frac{dx}{Sin\,2x} = \frac{1}{2}\,Arccot\,r\,.\,l\frac{p}{q}$ V. T. 252, N. 1.

11) $\int \{Arctg((r+p\,Cot\,x)) - Arctg((r+q\,Cot\,x))\}\frac{dx}{Sin\,2x} = \frac{1}{2}\,Arccot\,r\,.\,l\frac{p}{q}$ V. T. 252, N. 1.

12) $\int \{Arccot((p\,Tg\,x)) - Arccot((q\,Tg\,x))\}\frac{dx}{Sin\,2x} = \frac{\pi}{4}\,l\frac{q}{p}$ V. T. 247, N. 4.

13) $\int \{Sin^2 x\,.\,Arccot(Sin\,x) - Arctg(Sin\,x)\}\frac{dx}{Sin\,2x} = -\frac{1}{8}\,\pi\,l\,2$ V. T. 232, N. 1.

F. Circ. Dir. en dén. monôme; Circ. Inverse à plusieurs fact. TABLE 343. Lim. 0 et $\frac{\pi}{2}$.

1) $\int Arctg\left(\frac{1}{q}\,Tg\,x\right).Arctg\left(\frac{1}{p}\,Tg\,x\right)\frac{dx}{Sin^2 x} = \frac{\pi}{2}\left\{\frac{1}{q}\,l\frac{p+q}{p} + \frac{1}{p}\,l\frac{p+q}{q}\right\}$ V. T. 247, N. 8.

2) $\int Arctg\left(\frac{p-r}{Tg\,x+pr\,Cot\,x}\right).Arccot(q\,Tg\,x)\frac{dx}{Sin^2 x} = \infty$ V. T. 252, N. 4.

3) $\int Arctg\left(\frac{p-r}{Cot\,x+pr\,Tg\,x}\right).Arccot(q\,Tg\,x)\frac{dx}{Sin^2 x} = \infty$ V. T. 252, N. 5.

4) $\int Arctg\left(\frac{p-r}{Tg\,x+pr\,Cot\,x}\right).Arctg(q\,Tg\,x)\frac{dx}{Sin^2 x} = \frac{\pi}{2}\left\{q\,l\frac{p}{r} + \frac{qr+1}{r}\,l\frac{qr+1}{q} - \frac{pq+1}{p}\right.$
$\left. l\frac{pq+1}{p} + \frac{p-r}{pr}\,l\,q\right\}$ V. T. 252, N. 7.

5) $\int Arctg\left(\frac{p-r}{pr\,Tg\,x+Cot\,x}\right).Arctg(q\,Tg\,x)\frac{dx}{Sin^2 x} = \frac{\pi}{2}\left\{p\,l\frac{p+q}{p} - r\,l\frac{q+r}{r} + q\,l\frac{p+q}{q+r}\right\}$
V. T. 252, N. 8.

6) $\int Arctg\left(\frac{p-r}{Tg\,x+pr\,Cot\,x}\right).Arctg\left(\frac{q-s}{Tg\,x+qs\,Cot\,x}\right)\frac{dx}{Sin^2 x} = \frac{\pi}{2}\left\{\frac{q-s}{qs}\,l\frac{p}{r} + \frac{p-r}{pr}\,l\frac{q}{s} + \right.$
$\left. + \frac{1}{p}\,l\frac{p+q}{p+s} + \frac{1}{q}\,l\frac{q+p}{q+r} + \frac{1}{r}\,l\frac{r+s}{r+q} + \frac{1}{s}\,l\frac{s+r}{s+p}\right\}$ V. T. 252, N. 6.

7) $\int Arctg\left(\frac{p-r}{pr\,Tg\,x+Cot\,x}\right).Arctg\left(\frac{q-s}{Tg\,x+qs\,Cot\,x}\right)\frac{dx}{Sin^2 x}=\frac{\pi}{2}\left\{(p-r)\,l\frac{q}{s}-\frac{pq+1}{q}\,l(1+pq)+\right.$
$\left.+\frac{ps+1}{s}\,l(1+ps)-\frac{1+rs}{s}\,l(1+rs)+\frac{1+qr}{q}\,l(1+qr)\right\}$ V. T. 252, N. 9.

8) $\int\left\{Arctg\left(\frac{p-r}{Tg\,x+pr\,Cot\,x}\right)\right\}^2\frac{dx}{Sin^2 x}=\frac{2\pi}{r}\,lp+\frac{2\pi}{p}\,lr-2\pi\frac{p+r}{pr}\,l\frac{p+r}{2}$ V. T. 252, N. 3.

9) $\int Arctg\left(\frac{p-r}{pr\,Tg\,x+Cot\,x}\right).Arctg\left(\frac{q-s}{qs\,Tg\,x+Cot\,x}\right)\frac{dx}{Cos^2 x}=\frac{\pi}{2}\left\{\frac{q-s}{qs}\,l\frac{p}{r}+\frac{p-r}{pr}\,l\frac{q}{s}+\frac{1}{p}\,l\frac{p+q}{p+s}+\right.$
$\left.+\frac{1}{q}\,l\frac{p+q}{q+r}+\frac{1}{r}\,l\frac{r+s}{r+q}+\frac{1}{s}\,l\frac{s+r}{s+p}\right\}$ V. T. 252, N. 6.

10) $\int Arctg\left(\frac{p-r}{Tg\,x+pr\,Cot\,x}\right).Arctg\left(\frac{q-s}{qs\,Tg\,x+Cot\,x}\right)\frac{dx}{Cos^2 x}=\frac{\pi}{2}\left\{(p-r)\,l\frac{q}{s}-\frac{pq+1}{q}\,l(1+pq)+\right.$
$\left.+\frac{ps+1}{s}\,l(1+ps)-\frac{rs+1}{s}\,l(1+rs)+\frac{qr+1}{q}\,l(1+qr)\right\}$ V. T. 252, N. 9.

11) $\int Arctg\left(\frac{p-r}{pr\,Tg\,x+Cot\,x}\right).Arccot(q\,Tg\,x)\frac{dx}{Cos^2 x}=\frac{\pi}{2}\left\{\frac{1}{q}\,l\frac{p}{r}+\frac{q+r}{qr}\,l(q+r)-\right.$
$\left.-\frac{p+q}{pq}\,l(p+q)-\frac{p-r}{pr}\,lq\right\}$ V. T. 252, N. 7.

12) $\int Arctg\left(\frac{p-r}{Tg\,x+pr\,Cot\,x}\right).Arccot(q\,Tg\,x)\frac{dx}{Cos^2 x}=\frac{\pi}{2}\left\{p\,l\frac{1+pq}{pq}-r\,l\frac{1+qr}{qr}+\frac{1}{q}\,l\frac{pq+1}{qr+1}\right\}$
V. T. 252, N. 8.

13) $\int Arccot(p\,Tg\,x).Arccot(q\,Tg\,x)\frac{dx}{Cos^2 x}=\frac{\pi}{2}\left\{\frac{1}{q}\,l\frac{p+q}{p}+\frac{1}{p}\,l\frac{p+q}{q}\right\}$ V. T. 247, N. 8.

14) $\int\left\{Arctg\left(\frac{p-r}{pr\,Tg\,x+Cot\,x}\right)\right\}^2\frac{dx}{Cos^2 x}=\frac{2\pi}{r}\,lp+\frac{2\pi}{p}\,lr-2\pi\frac{p+r}{pr}\,l\frac{p+r}{2}$ V. T. 252, N. 3.

F. Circ. Dir. en dén. binôme; Circul. Inverse. TABLE 344. Lim. 0 et $\frac{\pi}{2}$.

1) $\int Arctg\left(\frac{2p\,Cos^2 x}{1-p^2\,Cos^2 x}\right)\frac{dx}{r^2\,Cos^2 x+q^2\,Sin^2 x}=\frac{\pi}{qr}\,Arctg\frac{pq}{q+r}$ (VIII, 275*).

2) $\int Arcsin(p\,Sin\,x)\frac{Sin\,x}{\sqrt{1-p^2\,Sin^2 x}}dx=-\frac{\pi}{4p}\,l(1-p^2)$ V. T. 239, N. 1.

3) $\int Arctg\{Tg\,\lambda.\sqrt{1-p^2\,Sin^2 x}\}\frac{dx}{\sqrt{1-p^2\,Sin^2 x}}=\frac{\pi}{2}\,F(p,\lambda)$ (VIII, 340).

4) $\int Arctg\{Tg\lambda.\sqrt{1-p^2Sin^2x}\}\frac{Sin^2x}{\sqrt{1-p^2Sin^2x}}dx=\frac{\pi}{2p^2}[F(p,\lambda)-E(p,\lambda)+$
$+Cot\lambda.\{1-\sqrt{1-p^2Sin^2\lambda}\}]$ (VIII, 341).

5) $\int Arctg\{Tg\lambda.\sqrt{1-p^2Sin^2x}\}\frac{Cos^2x}{\sqrt{1-p^2Sin^2x}}dx=\frac{\pi}{2p^2}[E(p,\lambda)-(1-p^2)F(p,\lambda)+$
$+Cot\lambda.\{\sqrt{1-p^2Sin^2\lambda}-1\}]$ (VIII, 342).

6) $\int Arctg\{Tg\lambda.\sqrt{1-p^2Sin^2x}\}\frac{Cos2x}{\sqrt{1-p^2Sin^2x}}dx=\frac{\pi}{2p^2}[2E(p,\lambda)-(2-p^2)F(p,\lambda)+$
$+2Cot\lambda.\{\sqrt{1-p^2Sin^2\lambda}-1\}]$ V. T. 344, N. 4, 5.

7) $\int Arctg\{Tg\lambda.\sqrt{1-p^2Sin^2x}\}\frac{dx}{\sqrt{1-p^2Sin^2x}^3}=\frac{\pi}{2(1-p^2)}[E(p,\lambda)-$
$-Tg\lambda.\{\sqrt{1-p^2Sin^2\lambda}-\sqrt{1-p^2}\}]$ (VIII, 340).

8) $\int Arctg\{Tg\lambda.\sqrt{1-p^2Sin^2x}\}\frac{Sin^2x}{\sqrt{1-p^2Sin^2x}^3}dx=\frac{\pi}{2p^2(1-p^2)}[E(p,\lambda)-(1-p^2)F(p,\lambda)-$
$-Tg\lambda.\{\sqrt{1-p^2Sin^2\lambda}-\sqrt{1-p^2}\}]$ (VIII, 342).

9) $\int Arctg\{Tg\lambda.\sqrt{1-p^2Sin^2x}\}\frac{Cos^2x}{\sqrt{1-p^2Sin^2x}^3}dx=\frac{\pi}{2p^2}[F(p,\lambda)-E(p,\lambda)+$
$+Tg\lambda.\{\sqrt{1-p^2Sin^2\lambda}-\sqrt{1-p^2}\}]$ (VIII, 342).

10) $\int Arctg\{Tg\lambda.\sqrt{1-p^2Sin^2x}\}\frac{Cos2x}{\sqrt{1-p^2Sin^2x}^3}dx=\frac{\pi}{2p^2(1-p^2)}[2(1-p^2)F(p,\lambda)-$
$-(2-p^2)E(p,\lambda)+(2-p^2)Tg\lambda.\{\sqrt{1-p^2Sin^2\lambda}-\sqrt{1-p^2}\}]$ V. T. 344, N. 8, 9.

11) $\int Arctg\{Tg\lambda.\sqrt{1-p^2Sin^2x}\}\frac{Sin^4x}{\sqrt{1-p^2Sin^2x}^3}dx=\frac{\pi}{2p^4(1-p^2)}[(2-p^2)E(p,\lambda)-$
$-2(1-p^2)F(p,\lambda)+\{Tg\lambda.\sqrt{1-p^2}-(1-p^2)Cot\lambda\}+\{(1-p^2)Cot\lambda-Tg\lambda\}$
$.\sqrt{1-p^2Sin^2\lambda}]$ V. T. 344, N. 4, 8.

12) $\int Arctg\{Tg\lambda.\sqrt{1-p^2Sin^2x}\}\frac{Sin^2x.Cos^2x}{\sqrt{1-p^2Sin^2x}^3}dx=\frac{\pi}{2p^4}[(2-p^2)F(p,\lambda)-2E(p,\lambda)+$
$+(Cot\lambda-Tg\lambda.\sqrt{1-p^2})+(Tg\lambda-Cot\lambda)\sqrt{1-p^2Sin^2\lambda}]$ V. T. 344, N. 5, 9.

13) $\int Arctg\{Tg\lambda.\sqrt{1-p^2Sin^2x}\}\frac{Cos^4x}{\sqrt{1-p^2Sin^2x}^3}dx=\frac{\pi}{2p^4}[(2-p^2)E(p,\lambda)-2(1-p^2)F(p,\lambda)+$
$+(Tg\lambda.\sqrt{1-p^2}^3-Cot\lambda)+\{Cot\lambda-(1-p^2)Tg\lambda\}\sqrt{1-p^2Sin^2\lambda}]$ V. T. 344, N. 9, 12.

14) $\int Arccot\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{\pi}{2} F(p,\varphi)$ (VIII, 341).

15) $\int Arccot\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{Sin^2 x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{\pi}{2p^2}\Big[F(p,\varphi) - E(p,\varphi) + Cot\lambda . \Big\{\frac{1}{\sqrt{1-p^2 Sin^2 \lambda}} - 1\Big\}\Big]$ (VIII, 342).

16) $\int Arccot\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{Cos^2 x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{\pi}{2p^2}\Big[E(p,\varphi) - (1-p^2) F(p,\varphi) - Cot\lambda . \Big\{\frac{1}{\sqrt{1-p^2 Sin^2 \lambda}} - 1\Big\}\Big]$ (VIII, 342).

17) $\int Arccot\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{Cos 2x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{\pi}{2p^2}\Big[2E(p,\varphi) - (2-p^2) F(p,\varphi) - 2\, Cot\lambda . \Big\{\frac{1}{\sqrt{1-p^2 Sin^2 \lambda}} - 1\Big\}\Big]$ V. T. 344, N. 15, 16.

18) $\int Arccot\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{\pi}{2}\Big[\frac{1}{1-p^2} E(p,\varphi) - Tg\lambda . \Big\{\frac{1}{\sqrt{1-p^2}} - \frac{1}{\sqrt{1-p^2 Sin^2 \lambda}}\Big\}\Big]$ (VIII, 341).

19) $\int Arccot\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{Sin^2 x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{\pi}{2p^2}\Big[\frac{1}{1-p^2} E(p,\varphi) - F(p,\varphi) - Tg\lambda . \Big\{\frac{1}{\sqrt{1-p^2}} - \frac{1}{\sqrt{1-p^2 Sin^2 \lambda}}\Big\}\Big]$ (VIII, 342).

20) $\int Arccot\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{\pi}{2p^2}\Big[F(p,\varphi) - E(p,\varphi) + (1-p^2)\, Tg\lambda . \Big\{\frac{1}{\sqrt{1-p^2}} - \frac{1}{\sqrt{1-p^2 Sin^2 \lambda}}\Big\}\Big]$. (VIII, 342).

21) $\int Arccot\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{Cos 2x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{\pi}{2p^2}\Big[2F(p,\varphi) - \frac{2-p^2}{1-p^2} E(p,\varphi) + (2-p^2)\, Tg\lambda . \Big\{\frac{1}{\sqrt{1-p^2}} - \frac{1}{\sqrt{1-p^2 Sin^2 \lambda}}\Big\}\Big]$ V. T. 344, N. 19, 20.

22) $\int Arccot\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{Sin^4 x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{\pi}{2p^4}\Big[\frac{2-p^2}{1-p^2} E(p,\varphi) - 2F(p,\varphi) + \Big(Cot\lambda - \frac{Tg\lambda}{\sqrt{1-p^2}}\Big) + \frac{Tg\lambda - Cot\lambda}{\sqrt{1-p^2 Sin^2 \lambda}}\Big]$ V. T. 344, N. 13, 19.

23) $\int Arccot\left\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\right\} \frac{Sin^2 x . Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{\pi}{2p^4}\Big[(2-p^2)F(p,\varphi)-2E(p,\varphi)+$
$+(Tg\lambda.\sqrt{1-p^2}-Cot\lambda)+\frac{Cot\lambda-(1-p^2)Tg\lambda}{\sqrt{1-p^2 Sin^2\lambda}}\Big]$ V. T. 344, N. 16, 20.

24) $\int Arccot\left\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\right\} \frac{Cos^4 x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{\pi}{2p^4}\Big[(2-p^2)E(p,\varphi)-2(1-p^2)$
$F(p,\varphi)+(Cot\lambda-Tg\lambda.\sqrt{1-p^2}^3)+\frac{(1-p^2)^2 Tg\lambda-Cot\lambda}{\sqrt{1-p^2 Sin^2\lambda}}\Big]$ V. T. 344, N. 20, 23.

Dans 14) à 24) on a $Cot\varphi = Tg\lambda.\sqrt{1-p^2}$.

F. Circ. Dir. entière; Circul. Inverse. TABLE 345. Lim. 0 et π.

1) $\int Arctg(Cos x).dx = 0$ V. T. 219, N. 11.

2) $\int Arctg\left(\frac{Sin^2 x}{\sqrt{p^2-1}}\right).dx = 4\sum_0^\infty \frac{\{p-\sqrt{p^2-1}\}^{2n+1}}{(2n+1)^2}$ $[p>1]$ V. T. 219, N. 16.

3) $\int Arctg\left(\frac{p Sin x}{1-p Cos x}\right). Sin x dx = \frac{1}{2}p\pi$ $[p^2<1]$ (VIII, 583).

4) $\int Arctg\left(\frac{p Sin x}{1-p Cos x}\right). Sin ax dx = \frac{\pi}{2a}p^a$ $[p^2 \leq 1]$ (VIII, 276).

5) $\int Arctg\left(\frac{p Sin x}{1-p Cos x}\right). Sin ax . Cos x dx = \frac{\pi}{4}\left(\frac{p^{a+1}}{a+1}+\frac{p^{a-1}}{a-1}\right)$ (VIII, 583).

6) $\int Arctg\left(\frac{p Sin x}{1-p Cos x}\right). Cos ax . Sin x dx = \frac{\pi}{4}\left(\frac{p^{a+1}}{a+1}-\frac{p^{a-1}}{a-1}\right)$ (VIII, 583).

7) $\int Arctg\left(\frac{2p Sin x}{1-p^2}\right). Sin 2ax dx = 0$ V. T. 345, N. 4.

8) $\int Arctg\left(\frac{2p Sin x}{1-p^2}\right). Sin\{(2a-1)x\} dx = \frac{\pi}{2a-1}p^{2a-1}$ V. T. 345, N. 4.

9) $\int Arctg\left(\frac{2p Sin x}{1-p^2}\right). Sin 2ax . Cos x dx = \frac{\pi}{2}\left(\frac{p^{2a+1}}{2a+1}+\frac{p^{2a-1}}{2a-1}\right)$ V. T. 345, N. 8.

10) $\int Arctg\left(\frac{2p Sin x}{1-p^2}\right). Cos 2ax . Sin x dx = \frac{\pi}{2}\left(\frac{p^{2a+1}}{2a+1}-\frac{p^{2a-1}}{2a-1}\right)$ V. T. 345 N. 8.

11) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right).Sin\{(2a-1)x\}.Cos\,x\,dx=0$ V. T. 345, N. 7.

12) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right).Cos\{(2a-1)x\}.Sin\,x\,dx=0$ V. T. 345, N. 7.

13) $\int Arctg\left(\frac{p\,Sin\,2x}{1-p\,Cos\,2x}\right).Sin\,2ax\,dx=\frac{\pi}{a}p^a$ V. T. 345, N. 4.

14) $\int Arctg\left(\frac{p\,Sin\,2x}{1-p\,Cos\,2x}\right).Sin\{(2a-1)x\}\,dx=0$ V. T. 345, N. 4.

15) $\int Arctg\left(\frac{p\,Sin\,2x}{1-p\,Cos\,2x}\right).Sin\,2ax.Cos\,x\,dx=0$ V. T. 345, N. 14.

16) $\int Arctg\left(\frac{p\,Sin\,2x}{1-p\,Cos\,2x}\right).Cos\,2ax.Sin\,x\,dx=0$ V. T. 345, N. 14.

17) $\int Arctg\left(\frac{p\,Sin\,2x}{1-p\,Cos\,2x}\right).Sin\{(2a-1)x\}.Cos\,x\,dx=\frac{\pi}{4}\left\{\frac{1}{a}p^a+\frac{1}{a-1}p^{a-1}\right\}$ V. T. 345, N. 13.

18) $\int Arctg\left(\frac{p\,Sin\,2x}{1-p\,Cos\,2x}\right).Cos\{(2a-1)x\}.Sin\,x\,dx=\frac{\pi}{4}\left\{\frac{1}{a}p^a-\frac{1}{a-1}p^{a-1}\right\}$ V. T. 345, N. 13.

Dans 5) à 18) on a $[p<1]$.

19) $\int Arctg\left(\frac{p\,Sin\,x}{1-p\,Cos\,x}\right).Tg\frac{1}{2}x\,dx=\pi\,l(1+p)$ $[p^2\leqq1]$ (VIII, 563).

20) $\int Arctg\left(\frac{2p\,Cos\,x}{1-p^2}\right).Cos\{(2a+1)x\}\,dx=\pi p^{2a+1}\frac{(-1)^a}{2a+1}$ (VIII, 277).

21) $\int(1+2p\,Cos\,x+p^2)^{\frac{1}{2}a}\,Sin\left\{a\,Arctg\left(\frac{p\,Sin\,x}{1+p\,Cos\,x}\right)\right\}.Sin\,bx\,dx=\frac{\pi}{2}p^b\binom{a}{b}$ (VIII, 277).

22) $\int(1+2p\,Cos\,x+p^2)^{\frac{1}{2}a}\,Cos\left\{a\,Arctg\left(\frac{p\,Sin\,x}{1+p\,Cos\,x}\right)\right\}.Cos\,bx\,dx=\frac{\pi}{2}p^b\binom{a}{b}$ (VIII, 277).

23) $\int(q^2+2qs\,Cos\,x+s^2)^{\frac{1}{2}p}\,Cos\left\{rx-p\,Arctg\left(\frac{q\,Sin\,x}{s+q\,Cos\,x}\right)\right\}dx=\frac{\pi q^r s^{p-r}\Gamma(p-r+1)}{\Gamma(1+r)\Gamma(1+p)}$

$[s>q]$ (IV, 554*).

24) $\int(1+2q\,Cos\,x+q^2)^{\frac{1}{2}r}(p^2+2pq\,Cos\,x+q^2)^{\frac{1}{2}s}\,Sin\left\{r\,Arccos\left(\frac{1+q\,Cos\,x}{\sqrt{1+2q\,Cos\,x+q^2}}\right)\right\}.$

$.Sin\left\{s\,Arccos\left(\frac{q+p\,Cos\,x}{\sqrt{p^2+2pq\,Cos\,x+q^2}}\right)\right\}dx=\frac{\pi}{2}q^s\sum_1^\infty\binom{r}{n}\binom{s}{n}p^n$ (VIII, 632).

25) $\int (1+2q\,Cos\,x+q^2)^{\frac{1}{2}r}(p^2+2pq\,Cos\,x+q^2)^{\frac{1}{2}s}\,Cos\left\{r\,Arccos\left(\frac{1+q\,Cos\,x}{\sqrt{1+2q\,Cos\,x+q^2}}\right)\right\}.$

$.\,Cos\left\{s\,Arccos\left(\frac{q+p\,Cos\,x}{\sqrt{p^2+2pq\,Cos\,x+q^2}}\right)\right\}dx=\frac{\pi}{2}q^s\left[2+\sum_1^\infty\binom{r}{n}\binom{s}{n}p^n\right]$ (VIII, 632).

1) $\int Arctg\left(\frac{p\,Sin\,x}{1-p\,Cos\,x}\right)\frac{dx}{Sin\,x}=\frac{\pi}{2}\,l\frac{1+p}{1-p}\,[p^2\leqq 1]$ (VIII, 563).

2) $\int Arctg\left(\frac{p\,Sin\,x}{1-p\,Cos\,x}\right)\frac{dx}{Tg\,\frac{1}{2}x}=-\pi\,l(1-p)\,[p^2\leqq 1]$ (VIII, 563).

3) $\int Arctg\left(\frac{p\,Sin\,x}{1-p\,Cos\,x}\right)\frac{dx}{Tg\,x}=-\frac{\pi}{2}\,l(1-p^2)\,[p^2<1],=\frac{\pi}{2}\,l\frac{p^2-1}{4p^2}\,[p^2>1]$ (VIII, 582).

4) $\int Arctg\left(\frac{p\,Sin\,x}{1-p\,Cos\,x}\right)\frac{Cos^2 x}{Sin\,x}dx=\frac{\pi}{2}\left\{l\frac{1+p}{1-p}-p\right\}$ (VIII, 583).

5) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right)\frac{dx}{Sin\,x}=\pi\,l\frac{1+p}{1-p}$ V. T. 346, N. 1.

6) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right)\frac{dx}{Tg\,x}=0$ V. T. 346, N. 3.

7) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right)\frac{Cos^2 x}{Sin\,x}dx=\pi\left\{l\frac{1+p}{1-p}-p\right\}$ V. T. 346, N. 4.

Dans 4) à 7) on a $[p<1]$.

8) $\int Arctg\left(\frac{p\,Sin\,2x}{1-p\,Cos\,2x}\right)\frac{dx}{Sin\,x}=0\,[p<1]$ V. T. 346, N. 1.

9) $\int Arctg\left(\frac{p\,Sin\,2x}{1-p\,Cos\,2x}\right)\frac{dx}{Tg\,x}=-\pi\,l(1-p)\,[p<1],=\pi\,l\frac{p-1}{4p}\,[p>1]$ V. T. 346, N. 3.

10) $\int Arctg\left(\frac{p\,Sin\,2x}{1-p\,Cos\,2x}\right)\frac{Cos^2 x}{Sin\,x}dx=0\,[p<1]$ V. T. 346, N. 4.

11) $\int Arctg\left(\frac{p\,Sin\,x}{1-p\,Cos\,x}\right)\frac{Sin\,x}{1-2q\,Cos\,x+q^2}dx=-\frac{\pi}{2q}\,l(1-pq)\,[p^2\leqq 1,\,q^2\leqq 1]$ (VIII, 560).

12) $\int Sin\left\{r\,Arccos\left(\frac{q+p\,Cos\,x}{\sqrt{p^2+2pq\,Cos\,x+q^2}}\right)\right\}\frac{Sin\,s\,x}{1-2q^s\,Cos\,s\,x+q^{2s}}(p^2+2pq\,Cos\,x+q^2)^{\frac{1}{2}r}\,dx=$
$=\frac{\pi}{2}q^{r-s}\sum_1^\infty\binom{r}{ns}p^{ns}$ (VIII, 635).

13) $\int Cos\left\{r\,Arccos\left(\frac{q+p\,Cos\,x}{\sqrt{p^2+2pq\,Cos\,x+q^2}}\right)\right\}\frac{1-q^s\,Cos\,s\,x}{1-2q^s\,Cos\,s\,x+q^{2s}}(p^2+2pq\,Cos\,x+q^2)^{\frac{1}{2}r}\,dx=$
$=\frac{\pi}{2}q^r\left\{2+\sum_1^\infty\binom{r}{ns}p^{ns}\right\}$ (VIII, 634).

14) $\int Arctg\left(\frac{q\,Sin\,x}{p+q\,Cos\,x}\right)\frac{Sin\,x}{\sqrt{1-2p\,Cos\,x+p^2}}dx=\frac{1+q}{pq}\,\frac{p^2+q}{p-q}\,\frac{p+q}{p+1}\Pi'\left\{\frac{4pq}{(p-q)^2}\,\frac{2\sqrt{p}}{1+p}\right\}-$
$-\frac{(1+q)(p-q^2)}{pq}F'(p)-\frac{2}{p}E'(p)+\frac{1+p}{p}D$, où $D=\pi\,[q<-p],=\frac{1-p}{1+p}\frac{\pi}{2}\,[q=-p],=$
$=0\,[-p<q<p],=\frac{\pi}{2}\,[q=p],=\pi\,[q>p]$ (IV, 480*).

15) $\int Arctg\left\{\frac{p\,Cos\,x}{\sqrt{q^2-p^2\,Cos^2\,x}}\right\}\frac{Cos\,x}{\sqrt{q^2-p^2\,Cos^2\,x}}dx=\frac{\pi}{2p}\,l\,\frac{q}{q-p^2}$ (IV, 481).

16) $\int Arctg\left\{\frac{Tg\,\lambda}{\sqrt{1-p^2\,Sin^2\,\lambda}}\sqrt{1-2p\,Cos\,x+p^2}\right\}\frac{dx}{\sqrt{1-2p\,Cos\,x+p^2}}=\pi\,F(p,\lambda)$ (IV, 480).

I. Circul. Directe; Circul. Inverse. **TABLE 347.** Lim. 0 et ∞.

1) $\int Arccot\frac{x}{q}.\,Sin\,p\,x\,dx=\frac{\pi}{2p}(1-e^{-pq})$ (VIII, 452).

2) $\int Arccot\frac{x}{q}.\,Cos\,p\,x\,dx=\frac{1}{2p}\{e^{-pq}\,Ei(pq)-e^{pq}\,Ei(-pq)\}$ (VIII, 597).

3) $\int Arctg\frac{p}{x}.\,Cos^{2a-1}x.\,Sin\,x\,dx=-\frac{\pi}{4a}+\frac{\pi}{2a}\,\frac{e^p+e^{-p}}{e^p-e^{-p}}\sum_0^\infty\frac{3^{a+n/2}}{2^{a+n/2}}\left(\frac{2}{e^p+e^{-p}}\right)^{2n}$ (VIII, 420).

4) $\int Arctg\frac{p}{x}.\,Cos^{2a}x.\,Sin\,x\,dx=\frac{-\pi}{2(2a+1)}+\frac{\pi}{2(2a+1)}\sum_1^\infty\frac{3^{a+n/2}}{2^{a+n/2}}\left(\frac{2}{e^p+e^{-p}}\right)^{2n-1}$ (VIII, 420).

5) $\int Arctg\left(\frac{p^2\,Sin^2\,x.\,Sin\,2\,x}{x^2-p^2\,Sin^2\,x.\,Cos\,2\,x}\right).\,Tg\,x\,dx=\pi\,l\,\frac{e^p-e^{-p}}{2}$

6) $\int Arctg\left(\frac{p^2\,Sin^2\,x.\,Sin\,2\,x}{x^2+p^2\,Sin^2\,x.\,Cos\,2\,x}\right).\,Tg\,x\,dx=\pi\,l\,Sec\,p$

Sur 5) et 6) voyez W. R. Hamilton, L. & E. Phil. Mag. 23, 360.

7) $\int Cos^{p+1}\left(Arctg\frac{x}{q}\right).Sin\left\{(p+1)\,Arctg\frac{x}{q}\right\}.Sin\,x\,dx=\frac{\pi}{2}\frac{q^{p+1}e^{-q}}{\Gamma(p+1)}$ V. T. 43, N. 12.

8) $\int Cos^{p+1}\left(Arctg\frac{x}{q}\right).Cos\left\{(p+1)\,Arctg\frac{x}{q}\right\}.Cos\,x\,dx=\frac{\pi q^{p+1}e^{-q}}{2\Gamma(p+1)}$ V. T. 43, N. 13.

9) $\int Arctg\frac{p}{x}\frac{Tg\,x}{q^2\,Cos^2\,x+r^2\,Sin^2\,x}dx=\frac{\pi}{2r^2}l\left(1+\frac{r}{q}\frac{e^p-e^{-p}}{e^p+e^{-p}}\right)$ (VIII, 420).

10) $\int Arctg\frac{r}{x}\frac{Sin\,p\,x}{1\pm 2q\,Cos\,p\,x+q^2}dx=\pm\frac{\pi}{2pq}l\frac{1\pm q}{1\pm q e^{-pr}}\,[q^2<1]=\pm\frac{\pi}{2pq}l\frac{q\pm 1}{q\pm e^{-pr}}\,[q^2>1]$
(VIII, 599).

11) $\int Arctg\frac{r}{x}\frac{Sin\,p\,x}{(1-2q\,Cos\,p\,x+q^2)^2}dx=\frac{\pi}{2p(1+q)(1-q)^3}\,\frac{1-e^{-pr}}{1-qe^{-pr}}\,[q^2<1]$ (VIII, 598).

F. Circul. Directe; Circul. Inverse. TABLE 348. Lim. diverses.

1) $\int_0^{\frac{\pi}{4}}Arcsin(Tg\,x)\frac{dx}{Sin\,2x}=\frac{\pi}{4}l2$ V. T. 230, N. 1.

2) $\int_0^{\frac{\pi}{4}}Arctg\left(\frac{p\sqrt{Cos\,2x}}{Cos\,x}\right)\frac{dx}{Cos\,2x}=\frac{\pi}{2}l\{p+\sqrt{1+p^2}\}$ V. T. 245, N. 10.

3) $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}}Arctg(p+q\,Tg\,x)\,dx=-\pi\frac{1}{2}\left\{Arctg\left(\frac{2pq}{1+p^2-q^2}\right)-Arctg\left(\frac{2p}{1-p^2-q^2}\right)\right\}$
V. T. 254, N. 10.

F. Circul. Directe; Circul. Inverse. } Intégr. Lim. (Lim. $k=\infty$.) TABLE 349. Lim. diverses.

1) $\int_0^a Arctg\left(\frac{p\,Sin\,x}{1-p\,Cos\,x}\right)\frac{Cos\,k\,x}{Sin\,x}dx=0\,[0<a<\infty]$ (VIII, 379).

F. Circul. Directe; Autre Fonction. TABLE 350. Lim. 0 et $\frac{\pi}{2}$

1) $\int F(p,x).Cot\,x\,dx=\frac{\pi}{4}F'\{\sqrt{1-p^2}\}+\frac{1}{2}lp.F'(p)$ Sylvester, Phil. Mag. 4th Ser., 20, 525.

2) $\int F(p,x)\frac{Sin\,x.Cos\,x}{1-p^2\,Sin^2\,x}dx=-\frac{1}{4p^2}l(1-p^2).F'(p)$ (VIII, 368).

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3) $\int E(p, Sin\,x) \frac{Sin\,x}{1-p^2 Sin^2 x} dx = \frac{\pi}{2\sqrt{1-p^2}}$ (VIII, 478).

4) $\int E(p,x) \frac{Sin\,x\,.\,Cos\,x}{1-p^2 Sin^2 x} dx = -\frac{1}{2p^2}\left[(p^2-2)F'(p) + \left\{2+\frac{1}{2}l(1-p^2)\right\}E'(p)\right]$ (VIII, 368).

5) $\int F\{\sqrt{1-p^2}, x\} \frac{Sin\,x\,.\,Cos\,x}{Cos^2 x + p\,Sin^2 x} dx = \frac{1}{4(1-p)} l \left\{\frac{2}{(1+p)\sqrt{p}}\right\}.F'\{\sqrt{1-p^2}\}$ (VIII, 369).

6) $\int F(p,x) \frac{Sin\,x\,.\,Cos\,x}{1+p\,Sin^2 x} dx = \frac{1}{4p} F'(p).l\left\{\frac{(1+p)\sqrt{p}}{2}\right\} + \frac{\pi}{16p} F'\{\sqrt{1-p^2}\}$ (VIII, 369).

7) $\int F(p,x) \frac{Sin\,x\,.\,Cos\,x}{1-p\,Sin^2 x} dx = \frac{1}{4p} F'(p).l\left\{\frac{2}{(1-p)\sqrt{p}}\right\} - \frac{\pi}{16p} F'\{\sqrt{1-p^2}\}$ (VIII, 369).

8) $\int F(p,x) \frac{Sin\,x\,.\,Cos\,x}{1-p^2 Sin^4 x} dx = \frac{1}{8p} F'(p).l\frac{1+p}{1-p}$ (VIII, 369).

9) $\int F(p,x) \frac{Sin^3 x\,.\,Cos\,x}{1-p^2 Sin^4 x} dx = \frac{1}{8p^2} F'(p).l\left\{\frac{4}{(1-p^2)p}\right\} - \frac{\pi}{16p^2} F'\{\sqrt{1-p^2}\}$ (VIII, 369).

10) $\int E(p,x) \frac{dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{2} E'(p).F'(p) - \frac{1}{4} l(1-p^2)$ (IV, 482).

11) $\int T(p,x) \frac{dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{\pi}{12} F'\{\sqrt{1-p^2}\} + \frac{1}{6} E'(p).\{F'(p)\}^2 + \frac{1}{6} F'(p).l\left\{\frac{p}{4(1-p^2)}\right\}$
(VIII, 267).

12) $\int F(p,x) \frac{Sin\,x\,.\,Cos\,x}{1-p^2 Sin^2\lambda\,.\,Sin^2 x} \frac{dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{-1}{p^2 Sin\,\lambda\,.\,Cos\,\lambda}\Big\{F'(p).Arctg\{Tg\,\lambda\,.\sqrt{1-p^2}\} -$
$- \frac{\pi}{2} F(p,\lambda)\Big\}$ (VIII, 370).

13) $\int E(p,x) \frac{Sin\,x\,.\,Cos\,x}{1-p^2 Sin^2\lambda\,.\,Sin^2 x} \frac{dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{-1}{p^2 Sin\,\lambda\,.\,Cos\,\lambda}\Big\{E'(p).Arctg\{Tg\,\lambda\,.\sqrt{1-p^2}\} -$
$- \frac{\pi}{2} E(p,\lambda) + \frac{\pi}{2} Cot\,\lambda.\{1-\sqrt{1-p^2 Sin^2\lambda}\}\Big\}$ (VIII, 370).

F. Circul. Directe; Autre Fonction. TABLE 351. Lim. diverses.

1) $\int_0^1 B'(x).Sin\,2c\pi x\,dx = 0$ (IV, 483).

2) $\int_0^1 B''(x).Cos\,2c\pi x\,dx = 0$ (IV, 483).

3) $\int_0^1 B'(x).Cos\,2c\pi x\,dx = \frac{(-1)^a}{(2\pi)^{2a+2}} \frac{1^{2a+1/1}}{c^{2a+2}}$ (IV, 483).

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4) $\int_0^1 B''(x).Sin\,2\,c\pi x\,dx = \frac{(-1)^{a-1}}{(2\pi)^{2a+1}}\frac{1^{2a/1}}{c^{2a+1}}$ (IV, 483).

5) $\int_0^\infty \left\{\frac{1}{\left(\frac{p-xi}{a}\right)} - \frac{1}{\left(\frac{p+xi}{a}\right)}\right\} Sin\,qx\,dx = (-1)^a\,a\,i\pi e^{-pq}(1-e^q)^{a-1}$

6) $\int_0^\infty \left\{\frac{1}{\left(\frac{p-xi}{a}\right)} + \frac{1}{\left(\frac{p+xi}{a}\right)}\right\} Cos\,qx\,dx = (-1)^{a-1}\,a\pi e^{-pq}(1-e^q)^{a-1}$

Sur 5) et 6) voyez Raabe, Dsch. Zür. 8, 1.

7) $\int_0^\pi \Upsilon(p,x)\frac{dx}{\sqrt{1-p^2\,Sin^2 x}} = \frac{\pi}{6}F'\{\sqrt{1-p^2}\} + \frac{4}{3}E'(p).\{F'(p)\}^2 + \frac{1}{3}F'(p).l\left\{\frac{p}{4(1-p^2)}\right\}$ (VIII, 267).

8) $\int_0^{Arcsin\,p} E'(Sin\,x)\frac{Tg\,x}{\sqrt{p^2-Sin^2 x}}dx = \frac{p\pi}{2\sqrt{1-p^2}}$ $[p^2<1]$ V. T. 255, N. 11.

9) $\int_\lambda^\mu F(p,x)\frac{dx}{\sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{1}{2\,Cos\,\lambda.Sin\,\mu}F'(p).F'\{\sqrt{1-Tg^2\lambda.Cot^2\mu}\}$ $[p<1]$ (VIII, 425).

10) $\int_\lambda^\mu E(p,x)\frac{dx}{\sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{1}{2\,Cos\,\lambda.Sin\,\mu}E'(p).F'\left\{\sqrt{\left(1-\frac{Tg^2\lambda}{Tg^2\mu}\right)}\right\} + \frac{p^2\,Sin\,\mu}{2\,Cos\,\lambda}F'\left\{\sqrt{1-\frac{Sin^2 2\lambda}{Sin^2 2\mu}}\right\}$ $[p<1]$

Dans 9) et 10) on a $p^2 = 1 - Cot^2\lambda.Cot^2\mu$ (VIII, 427).

PARTIE QUATRIÈME.

PARTIE QUATRIÈME.

F. Algébrique; Exponentielle; Logarithmique.	TABLE 352.	Lim. 0 et 1.

1) $\int e^{-x}\, lx.(1-x)\,dx = \frac{1-e}{e}$ (VIII, 592).

2) $\int e^{qx}\, lx.(qx+2)\,x\,dx = \frac{1}{q^2}\left\{(1-q)e^q - 1\right\}$ V. T. 80, N. 1.

3) $\int e^{-x^2}\, lx.(1-x^2)\,x\,dx = \frac{1-e}{4e}$ (VIII, 592).

4) $\int e^{-(1-x)^2}\, l(1-x).(2-x)(1-x)\,x\,dx = \frac{1-e}{4e}$ V. T. 352, N. 3.

5) $\int e^{x-1}\, l(1-x).x\,dx = \frac{1-e}{e}$ (VIII, 592).

6) $\int e^{x}\, lx\, \frac{x^2+x+2}{(x+1)^2}\, x\,dx = \frac{2-e}{2}$ V. T. 80, N. 6.

7) $\int x^{rx} \left(l\frac{1}{x}\right)^{q-1} . x^{p-1}\,dx = \Gamma(q) \sum_0^\infty \frac{r^n}{1^{n/1}}\; \frac{q^{n/1}}{(p+n)^{q+n}}$ (VIII, 515).

8) $\int \frac{x e^{qx}}{(e^{qx}-1)^{\frac{3}{2}}(e^q - e^{-qx})^{\frac{1}{2}}}\, l\left(p\frac{e^q - e^{-qx}}{e^{qx}-1}\right).dx = \frac{4\pi}{q}\left\{\frac{1-(1+q)e^{\frac{1}{2}q}}{1-e^q} + \frac{1}{1+e^{\frac{1}{2}p}}\, lp\right\}$ V. T. 33, N. 1.

9) $\int e^{rx}\, \frac{x^{p-1}-x^{q-1}}{lx}\,dx = l\frac{p}{q} + \sum_1^\infty \frac{r^n}{1^{n/1}}\, l\frac{p+n}{q+n}$ (VIII, 491).

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1) $\int e^{-qx} lx . x^{p-1} dx = \frac{1}{q^p} \Gamma(p) . \{ Z'(p) - lq \}$ (VIII, 363).

2) $\int e^{-qx} lx . (qx - p) x^{p-1} dx = \frac{1}{q^p} \Gamma(p)$ V. T. 81, N. 1.

3) $\int e^{-x^q} lx . (q x^q - p) x^{p-1} dx = \frac{1}{q} \Gamma\left(\frac{p}{q}\right)$ V. T. 81, N. 8.

4) $\int e^{-px^2} lx . (px^2 - a) x^{2a-1} dx = \frac{1}{4p^a} 1^{a-1/1}$ V. T. 81, N. 7.

5) $\int e^{-px^2} lx . (2px^2 - 2a - 1) x^{2a} dx = \frac{1}{2} \frac{1^{a/2}}{(2p)^a} \sqrt{\frac{\pi}{p}}$ V. T. 81, N. 6.

6) $\int e^{-px} l(q+x) . x^a dx = \frac{1}{p^{a+1}} \Big[1^{a/1} \{ lq - e^{pq} Ei(-pq) \} + \{ 1 + pq e^{pq} Ei(-pq) \}$

$2^{a-1/1} \sum_0^{a-1} 2^{n/1} (-pq)^n + 3^{a-2/1} \sum_0^{a-2} \frac{(pq)^n}{3^{n/1}} \sum_0^n \frac{1^{m+1/1}}{(-pq)^m} \Big]$ (IV, 488).

7) $\int e^{-px} l(q-x)^2 . x^a dx = \frac{1}{p^{a+1}} \Big[1^{a/1} \{ lq^2 - 2 e^{-pq} Ei(pq) \} + 2 \{ 1 - pq e^{-pq} Ei(pq) \}$

$2^{a-1/1} \sum_0^{a-1} 2^{n/1} (pq)^n + 2 . 3^{a-2/1} \sum_0^{a-2} \frac{(-pq)^n}{3^{n/1}} \sum_0^n \frac{1^{m+1/1}}{(pq)^m} \Big]$ (IV, 488).

8) $\int e^{-px} l(q^2 + x^2) . x^{2a} dx = \frac{1}{p^{2a+1}} \Big[1^{2a/1} lq^2 - 1^{2a/1} \{ 2\, Ci(pq) . Cos\, pq + 2\, Si(pq) . Sin\, pq -$

$- \pi\, Sin\, pq \} \sum_0^a \frac{(-p^2q^2)^n}{1^{2n/1}} + 1^{2a/1} \{ 2\, Ci(pq) . Sin\, pq - 2\, Si(pq) . Cos\, pq + \pi\, Cos\, pq \} \sum_0^a \frac{(pq)^{2n-1}}{1^{2n-1/1}} +$

$+ 2^{2a-1/1} \sum_1^a \frac{1}{1^{2n/1}} \sum_0^{n-1} 1^{2n-2m/1} (-p^2q^2)^m + 3^{2a-2/1} \sum_1^a \frac{1}{1^{2n-1/1}} \sum_0^{n-1} 1^{2n-2m-1/1} (-p^2q^2)^m \Big]$

(IV, 488).

9) $\int e^{-px} l(q^2 + x^2) . x^{2a+1} dx = \frac{1}{p^{2a+2}} \Big[1^{2a+1/1} lq^2 - 1^{2a+1/1} \{ 2\, Ci(pq) . Cos\, pq + 2\, Si(pq) . Sin\, pq -$

$- \pi\, Sin\, pq \} \sum_0^a \frac{(-p^2q^2)^n}{1^{2n/1}} + 1^{2a+1/1} \{ 2\, Ci(pq) . Sin\, pq - 2\, Si(pq) . Cos\, pq + \pi\, Cos\, pq \} \sum_1^{a+1} \frac{(pq)^{2n-1}}{1^{2n-1/1}} +$

$+ 2^{2a/1} \sum_1^{a+1} \frac{1}{1^{2n+1/1}} \sum_0^{n-1} 1^{2n-2m+1/1} (-p^2q^2)^m + 3^{2a-1/1} \sum_1^a \frac{1}{1^{2n/1}} \sum_0^{n-1} 1^{2n-2m/1} (-p^2q^2)^m \Big]$

(IV, 488).

10) $\int e^{-px} l(q^2 - x^2)^2 . x^{2a} dx = \frac{2}{p^{2a+1}} \Big[1^{2a/1} lq^2 - 1^{2a/1} e^{pq} Ei(-pq) \sum_0^{2a-1} \frac{(-pq)^n}{1^{n/1}} -$

$- 1^{2a/1} e^{-pq} Ei(pq) \sum_0^{2a-1} \frac{(pq)^n}{1^{n/1}} + 2^{2a-1/1} \sum_1^a \frac{1}{1^{2n/1}} \sum_0^{n-1} 1^{2n-2m/1} (p^2q^2)^m +$

$+ 3^{2a-2/1} \sum_0^a \frac{1}{1^{2n-1/1}} \sum_0^{n-1} 1^{2n-2m-1/1} (p^2q^2)^m \Big]$ V. T. 353, N. 6, 7.

11) $\int e^{-px}\, l(q^2-x^2)^2 . x^{2a+1}\, dx = \frac{2}{p^{2a+2}} \Big[1^{2a+1/1}\, lq^2 - 1^{2a+1/1}\, e^{pq}\, Ei(-pq) \sum_0^{2a} \frac{(-pq)^n}{1^{n/1}} -$

$- 1^{2a+1/1}\, e^{-pq}\, Ei(pq) \sum_0^{2a} \frac{(pq)^n}{1^{n/1}} + 2^{2a/1} \sum_1^{a+1} \frac{1}{1^{2n+1/1}} \sum_0^{n-1} 1^{2n-2m+1/1} (p^2 q^2)^m +$

$+ 3^{2a-1/1} \sum_1^{a} \frac{1}{1^{2n/1}} \sum_0^{n-1} 1^{2n-2m/1} (p^2 q^2)^m \Big]$ V. T. 353, N. 6, 7.

12) $\int e^{-px}\, l(q^4-x^4)^2 . x\, dx = 8 + 4\, lq^2 + 2(pq-1) e^{pq}\, Ei(-pq) + 2(pq+1) e^{-pq}\, Ei(pq) -$

$- 2pq \{2\, Ci(pq) . Sin\, pq - 2\, Si(pq) . Cos\, pq + \pi\, Cos\, pq\} - 2\{2\, Ci(pq) . Cos\, pq +$

$+ 2\, Si(pq) . Sin\, pq - \pi\, Sin\, pq\}$ V. T. 353, N. 9, 11.

13) $\int e^{-px}\, l(q^4-x^4)^2 . x^2\, dx = 24 + 8\, lq^2 - 2(p^2q^2 - 2pq + 2) e^{pq}\, Ei(-pq) - 2(p^2q^2 + 2pq + 2)$

$e^{-pq}\, Ei(pq) - 4pq\{2\, Ci(pq) . Sin\, pq - 2\, Si(pq) . Cos\, pq + \pi\, Cos\, pq\} +$

$+ 2(p^2q^2 - 2)\{2\, Ci(pq) . Cos\, pq + 2\, Si(pq) . Sin\, pq - \pi\, Sin\, pq\}$ V. T. 353, N. 8, 10.

14) $\int e^{-px}\, l(q^4-x^4)^2 . x^3\, dx = 88 + 24\, lq^2 + 2(p^3q^3 - 3p^2q^2 + 6pq - 6) e^{pq}\, Ei(-pq) -$

$- 2(p^3q^3 + 3p^2q^2 + 6pq + 6) e^{-pq}\, Ei(pq) + 2(p^2q^2 - 6) pq\{2\, Ci(pq) . Sin\, pq -$

$- 2\, Si(pq) . Cos\, pq + \pi\, Cos\, pq\} + 2(p^2q^2 - 6)\{2\, Ci(pq) . Cos\, pq + 2\, Si(pq) . Sin\, pq -$

$- \pi\, Sin\, pq\}$ V. T. 353, N. 9, 11.

F. Alg. fract. à dén. mon. et bin.;
Expon. monôme; TABLE 354. Lim. 0 et ∞.
Logarithmique.

1) $\int \frac{dx}{x}\, l\left\{\frac{s + re^{-qx}}{s + re^{-px}}\right\} = l\left\{\frac{s}{s+r}\right\} . l\frac{q}{p}$ (VIII, 280).

2) $\int l(1+x^2) . e^{-px} \frac{dx}{x} = \{Ci(p)\}^2 + \left\{\frac{\pi}{2} - Si(p)\right\}^2$ Enneper, Schl. Z. 6, 405.

3) $\int e^{-q^2x^2 - \frac{p^2}{x^2}}\, lx\, \frac{2q^2x^4 + x^2 - 2p^2}{x^4}\, dx = \frac{1}{2p} e^{-2pq} \sqrt{\pi}$ V. T. 89, N. 1.

4) $\int e^{-px}\, l(q+x) \frac{p(x+q)\, l(q+x) - 2}{x+q}\, dx = (lq)^2$ (IV, 489).

5) $\int e^{-px}\, l(q-x)^2 \frac{p(x-q)\, l(q-x)^2 - 4}{x-q}\, dx = (lq^2)^2$ (IV, 489).

6) $\int l(1-e^{-2\pi q x})\frac{dx}{1+x^2}=-\pi\left\{\frac{1}{2}l2q\pi-l\Gamma(q+1)+q(lq-1)\right\}$ (IV, 489).

7) $\int l(1+e^{-2\pi q x})\frac{dx}{1+x^2}=\pi\left\{l\Gamma(2q)-l\Gamma(q)+q(1-lq)-\left(2q-\frac{1}{2}\right)l2\right\}$

Winckler, Sitz. Ber. Wien. 48, 315.

8) $\int e^{-px}l(q^2+x^2)\frac{p(x^2+q^2)l(q^2+x^2)-4}{x^2+q^2}dx=(lq^2)^2$ (IV, 489).

9) $\int e^{-px}l(q^2-x^2)^2\frac{p(x^2-q^2)l(q^2-x^2)^2-8}{x^2-q^2}dx=(lq^4)^2$ (IV, 489).

10) $\int l\left\{\frac{(x+p)(x+q)}{pq}\right\}\frac{e^{-x}}{x+p+q}dx=e^{p+q}\,li(e^{-p}).\,li(e^{-q})$

11) $\int l\{(x+p)(x+q)\}\frac{e^{-rx}}{x+p+q}dx=e^{(p+q)r}\left[li(e^{-pr}).\,li(e^{-qr})-lpq.\,li\{e^{-(p+q)r}\}\right]$

12) $\int l(x+p+q).e^{-rx}\left(\frac{1}{x+p}+\frac{1}{x+q}\right)dx=(1+lp.lq).l(p+q)+e^{-(p+q)r}\{li(e^{-pr}).li(e^{-qr})+$
$+(1-lpq).li(e^{-(p+q)r})\}$ Sur 9) à 11) voyez Winckler, Cr. 50, 1.

13) $\int\left\{e^{-x}-\frac{x(1+x)^{-p}}{l(1+x)}\right\}\frac{dx}{x}=l(p-1)$ (IV, 490).

14) $\int\left\{\frac{e^{-x}}{x}-\frac{1}{(1+x)^2\,l(1+x)}\right\}dx=0$ (VIII, 586).

15) $\int\left\{e^{-x}-\frac{x}{(1+x)^{p+1}\,l(1+x)}\right\}\frac{dx}{x}=lp$ Winckler, Sitz. Ber. Wien. 21, 389.

16) $\int\left\{(p-1)e^{-x}+\frac{(1+x)^{-p}-(1+x)^{-1}}{l(1+x)}\right\}\frac{dx}{x}=l\Gamma(p)$ (VIII, 586).

F. Alg. fract. à dén. puiss. de bin.; Expon. monôme; Logarithmique. TABLE 355. Lim. 0 et ∞.

1) $\int e^{-px}l(q+x)\frac{px+pq+1}{(x+q)^2}dx=pe^{pq}\,Ei(-pq)+\frac{1}{q}(1+lq)$ V. T. 355, N. 14.

2) $\int e^{-px}l(q-x)^2\frac{px-pq+1}{(x-q)^2}dx=2pe^{-pq}\,Ei(pq)-\frac{1}{q}(2+lq^2)$ V. T. 355, N. 15.

3) $\int e^{-px}\, l(q+x)\frac{px-pq+1}{(x-q)^2}\,dx = \frac{1}{2q}\left\{e^{pq}\,Ei(-pq) - e^{-pq}\,Ei(pq) - lq^2\right\}$ (IV, 490).

4) $\int e^{-px}\, l(q-x)^2\frac{px+pq+1}{(x+q)^2}\,dx = \frac{1}{q}\left\{e^{pq}\,Ei(-pq) - e^{-pq}\,Ei(pq) + lq^2\right\}$ (IV, 490).

5) $\int e^{-px}\, l(q^2-x^2)^2\frac{px+pq+1}{(x+q)^2}\,dx = \frac{1}{q}\left\{(2pq+1)e^{pq}\,Ei(-pq) - e^{-pq}\,Ei(pq) + 2lq^2 + 2\right\}$

V. T. 355, N. 1, 4.

6) $\int e^{-px}\, l(q^2-x^2)^2\frac{px-pq+1}{(x-q)^2}\,dx = \frac{1}{q}\left\{e^{pq}\,Ei(-pq) + (2pq-1)e^{-pq}\,Ei(pq) - 2lq^2 - 2\right\}$

V. T. 355, N. 2, 3.

7) $\int e^{-px}\, l(q+x)\frac{px^2-(pq+2a-1)x+2aq}{(x-q)^2}x^{2a-1}\,dx = \frac{1}{2}q^{2a-1}\left\{e^{pq}\,Ei(-pq) - e^{-pq}\,Ei(pq)\right\} +$

$+\frac{1}{p^{2a-1}}\sum_1^a 1^{2a-2n/1}(p^2q^2)^{n-1}$ (IV, 491).

8) $\int e^{-px}\, l(q+x)\frac{px^2-(pq+2a)x+(2a+1)q}{(x-q)^2}x^{2a}\,dx = -\frac{1}{2}q^{2a}\left\{e^{pq}\,Ei(-pq) + e^{-pq}\,Ei(pq)\right\} +$

$+\frac{1}{p^{2a}}\sum_1^a 1^{2a-2n+1/1}(p^2q^2)^{n-1}$ (IV, 491).

9) $\int e^{-px}\, l(q-x)^2\frac{px^2+(pq-2a+1)x-2aq}{(x+q)^2}x^{2a-1}\,dx = q^{2a-1}\left\{e^{pq}\,Ei(-pq) - e^{-pq}\,Ei(pq)\right\} +$

$+\frac{2}{p^{2a-1}}\sum_1^a 1^{2a-2n/1}(p^2q^2)^{n-1}$ (IV, 491).

10) $\int e^{-px}\, l(q-x)^2\frac{px^2+(pq-2a)x-(2a+1)q}{(x+q)^2}x^{2a}\,dx = -q^{2a}\left\{e^{pq}\,Ei(-pq) + e^{-pq}\,Ei(pq)\right\} +$

$+\frac{2}{p^{2a}}\sum_1^a 1^{2a-2n+1/1}(p^2q^2)^{n-1}$ (IV, 491).

11) $\int e^{-px}\, l(q+x)\frac{px^2+2x-pq^2}{(x^2-q^2)^2}\,dx = \frac{1}{4q^2}\left\{2 - 4lq^2 - (2pq-1)e^{pq}\,Ei(-pq) - e^{-pq}\,Ei(pq)\right\}$

V. T. 355, N. 1, 3.

12) $\int e^{-px}\, l(q-x)^2\frac{px^2+2x-pq^2}{(x^2-q^2)^2}\,dx = \frac{1}{2q^2}\left\{2 - 4lq^2 - e^{pq}\,Ei(-pq) + (2pq+1)e^{-pq}\,Ei(pq)\right\}$

V. T. 355, N. 2, 4.

13) $\int e^{-px}\, l(q^2-x^2)^2\frac{px^2+2x-pq^2}{(x^2-q^2)^2}\,dx = \frac{1}{q^2}\left\{2 - 4lq^2 - pq\,e^{pq}\,Ei(-pq) + pq\,e^{-pq}\,Ei(pq)\right\}$

V. T. 355, N. 11, 12.

F. Alg. fract. à dén. puiss. de bin.; Expon. monôme; Logarithmique.	TABLE 355, suite.	Lim. 0 et ∞.

14) $\int e^{-px} l(q+x) \frac{px+pq+a-1}{(x+q)^a} dx = \frac{lq}{q^{a-1}} + \frac{(-p)^a}{1^{a-1/1} p} e^{pq} Ei(-pq) + \frac{1}{1^{a-1/1} q^{a-1}}$
$\sum_1^{a-1} 1^{a-n-1/1} (-pq)^{n-1}$ (IV, 490).

15) $\int e^{-px} l(q-x)^2 \frac{px-pq+a-1}{(x-q)^a} dx = (-1)^{a-1} \left\{ \frac{1}{q^{a-1}} lg^2 - 2 \frac{p^{a-1}}{1^{a-1/1}} e^{-pq} Ei(pq) + \right.$
$\left. + \frac{2}{1^{a-1/1} q^{a-1}} \sum_1^{a-1} 1^{a-n-1/1} (pq)^{n-1} \right\}$ (IV, 490).

F. Algébr. rat.; Expon. en dén. polynôme; Logarithmique.	TABLE 356.	Lim. 0 et ∞.

1) $\int lx \frac{(px-q)e^{px}-q}{(e^{px}+1)^2} x^{q-1} dx = \frac{1}{p^q} \Gamma(q) \sum_0^\infty \frac{(-1)^n}{(n+1)^q}$ V. T. 83, N. 6.

2) $\int lx \frac{(2qx-2a-1)e^{qx}-(2qx+2a+1)e^{-qx}}{(e^{qx}+e^{-qx})^2} x^{2a} dx = \frac{2^{2a-1}-1}{(2q)^{2a+1}} \pi^{2a} B_{2a-1}$
V. T. 86, N. 2.

3) $\int lx \frac{(qx-p)(1+e^x)+xe^x}{(1+e^x)^2} e^{-qx} x^{p-1} dx = \Gamma(p) \sum_1^\infty \frac{(-1)^{n-1}}{(q+n)^p}$ V. T. 83, N. 9.

4) $\int lx \frac{(qx-2a)e^{qx}-2a}{(e^{qx}+1)^2} x^{2a-1} dx = \frac{2^{2a-1}-1}{2a} B_{2a-1} \left(\frac{\pi}{q}\right)^{2a}$ V. T. 83, N. 2.

5) $\int lx \frac{(px-q)e^{px}+q}{(e^{px}-1)^2} x^{q-1} dx = \frac{1}{p^q} \Gamma(q) \sum_0^\infty \frac{1}{(n+1)^q}$ V. T. 83, N. 7.

6) $\int lx \frac{(2qx-2a-1)e^{qx}+(2qx+2a+1)e^{-qx}}{(e^{qx}-e^{-qx})^2} x^{2a} dx = \frac{1}{4q^{2a+1}} \pi^{2a} B_{2a-1}$ V. T. 86, N. 5.

7) $\int lx \frac{(qx-p)(e^x-1)+xe^x}{(e^x-1)^2} e^{-qx} x^{p-1} dx = \Gamma(p) \sum_1^\infty \frac{1}{(q+n)^p}$ V. T. 83, N. 10.

8) $\int lx \frac{qxe^{qx}-2a(e^{2qx}-1)}{(e^{qx}-1)^2} x^{2a-1} dx = \frac{1}{a} 2^{2a-2} B_{2a-1} \left(\frac{\pi}{q}\right)^{2a}$ V. T. 83, N. 4.

9) $\int lx \frac{ae^{2qx}-qxe^{qx}-a}{(e^{qx}-1)^2} x^{2a-1} dx = -\frac{1}{a} 2^{2a-1} \left(\frac{\pi}{q}\right)^{2a} B_{2a-1}$ V. T. 83, N. 11.

10) $\int lx \frac{(q+1)(e^x+e^{-x})-x(e^x-e^{-x})}{(e^x+e^{-x})^2} x^q dx = \Gamma(q+1) \sum_0^\infty \frac{(-1)^{n+1}}{(2n+1)^{q+1}}$ V. T. 84, N. 11.

11) $\int lx \frac{(2a+1)(e^{qx}+e^{-qx})-qx(e^{qx}-e^{-qx})}{(e^{qx}+e^{-qx})^2} x^{2a}\, dx = -\frac{1}{2}\left(\frac{\pi}{2q}\right)^{2a+1} \mathrm{B}_{2a}$ V. T. 84, N. 12.

12) $\int l(1+x^2) \frac{e^{\pi x}(1+\pi x)+e^{-\pi x}(1-\pi x)}{(e^{\pi x}+e^{-\pi x})^2} \frac{dx}{x^2} = 2 - \frac{1}{2}\pi$ V. T. 97, N. 1.

13) $\int l(1+4x^2) \frac{e^{\pi x}(1+\pi x)+e^{-\pi x}(1-\pi x)}{(e^{\pi x}+e^{-\pi x})^2} \frac{dx}{x^2} = 2\, l2$ V. T. 97, N. 2.

14) $\int lx \frac{(qx-2a-1)e^{qx}+(qx+2a+1)e^{-qx}}{(e^{qx}-e^{-qx})^2} x^{2a}\, dx = \frac{2^{2a+1}-1}{(2q)^{2a+1}} 1^{2a/1} \sum_1^\infty \frac{1}{n^{2a+1}}$

V. T. 84, N. 13.

15) $\int lx \frac{(qx-2a)e^{qx}+(qx+2a)e^{-qx}}{(e^{qx}-e^{-qx})^2} x^{2a-1}\, dx = \frac{2^{2a}-1}{4a} \mathrm{B}_{2a-1} \left(\frac{\pi}{q}\right)^{2a}$ V. T. 84, N. 14.

16) $\int lx \frac{x(e^{x}-e^{-x})-3(e^{\frac{1}{2}x}-e^{-\frac{1}{2}x})^2-12\, Cos^2 \frac{1}{2}\lambda}{(e^{x}+e^{-x}+2\, Cos\,\lambda)^2} x^2\, dx = \frac{\lambda}{2\, Sin\,\lambda}\, \frac{\pi^2-\lambda^2}{3}$ V. T. 88, N. 3.

17) $\int lx \frac{q(e^{x}+e^{-x}+2\, Cos\,\lambda)-x(e^{x}-e^{-x})}{(e^{x}+e^{-x}+2\, Cos\,\lambda)^2} x^{q-1}\, dx = \frac{\Gamma(q)}{Sin\,\lambda} \sum_1^\infty (-1)^n \frac{Sin\, n\lambda}{n^q}$ V. T. 96, N. 4.

18) $\int lx \frac{x(e^{x}-e^{-x})-2(e^{\frac{1}{2}x}-e^{-\frac{1}{2}x})^2}{(e^{x}+e^{x}-1)^2} x\, dx = \frac{4}{27}\pi^2$ V. T. 88, N. 1.

19) $\int lx \frac{(x-2)e^{2x}+2}{\sqrt{e^{2x}-1}^3} x\, dx = \frac{\pi}{2}\, l2$ V. T. 99, N. 4.

20) $\int lx \frac{2(x-1)e^{x}+(2-x)e^{-x}}{\sqrt{e^{2x}-1}^3} x\, dx = 1 - l2$ V. T. 99, N. 8.

21) $\int \frac{e^{px}+e^{-px}}{e^{\pi x}+e^{-\pi x}} \frac{lx}{x^q} dx = Z'(1-q).\Gamma(1-q) \sum_0^\infty (-1)^n \left\{\frac{1}{\{(2n+1)\pi-p\}^{1-q}} + \frac{1}{\{(2n+1)\pi+p\}^{1-q}}\right\} -$

$- \Gamma(1-q) \sum_0^\infty (-1)^n \left\{\frac{l\{(2n+1)\pi-p\}}{\{(2n+1)\pi-p\}^{1-q}} + \frac{l\{(2n+1)\pi+p\}}{\{(2n+1)\pi+p\}^{1-q}}\right\}$ (VIII, 567).

22) $\int \frac{e^{px}-e^{-px}}{e^{\pi x}-e^{-\pi x}} \frac{lx}{x^q} dx = Z'(1-q).\Gamma(1-q) \sum_0^\infty \left\{\frac{1}{\{(2n+1)\pi-p\}^{1-q}} - \frac{1}{\{(2n+1)\pi+p\}^{1-q}}\right\} -$

$- \Gamma(1-q) \sum_0^\infty \left\{\frac{l\{(2n+1)\pi-p\}}{\{(2n+1)\pi-p\}^{1-q}} - \frac{l\{(2n+1)\pi+p\}}{\{(2n+1)\pi+p\}^{1-q}}\right\}$ (VIII, 567).

1) $\int e^{-qx} lx . dx \sqrt{x} = \frac{1}{2q}(2 - lq - 2l2 - A)\sqrt{\frac{\pi}{q}}$ (VIII, 363).

2) $\int e^{-qx}\left(qx - a - \frac{1}{2}\right) lx . x^{a-\frac{1}{2}} dx = \frac{1^{a/2}}{(2q)^a}\sqrt{\frac{\pi}{q}}$ V. T. 98, N. 2.

3) $\int e^{-qx} lx . x dx = \frac{1}{4q}(10 - 3lq - 6l2 - A)\sqrt{\frac{\pi}{q}}$ V. T. 357, N. 1, 2.

4) $\int e^{-\left(px+\frac{q}{x}\right)} lx . \{2px^2 - (2c+1)x - 2q\} x^{c-\frac{1}{2}} dx = 2\left(\frac{q}{p}\right)^{\frac{1}{2}c} e^{-2\sqrt{pq}} \sqrt{\frac{\pi}{p}} . \sum_0^\infty \frac{(c-n+1)^{2n/1}}{2^{n/2}(2\sqrt{pq})^n}$
V. T. 98, N. 5.

5) $\int e^{-qx} lx \frac{dx}{\sqrt{x}} = -(lq + 2l2 + A)\sqrt{\frac{\pi}{q}}$ (VIII, 363).

6) $\int e^{-q^2x-\frac{p^2}{x}} lx \frac{2q^2x^2 - 3x - 2p^2}{\sqrt{x}} dx = \frac{1+2pq}{2q^3} e^{-2pq}\sqrt{\pi}$ V. T. 98, N. 4.

7) $\int e^{-q^2x-\frac{p^2}{x}} lx \frac{2q^2x^2 - x - 2p^2}{x\sqrt{x}} dx = \frac{2}{q} e^{-2pq}\sqrt{\pi}$ V. T. 98, N. 15.

8) $\int e^{-\frac{1+x^2}{2qx}} lx \frac{1+qx-x^2}{x\sqrt{x}} dx = -\frac{\sqrt{2q\pi}}{\sqrt[q]{e}} 2q$ V. T. 98, N. 12.

9) $\int e^{-\frac{1+x^2}{2qx}} lx \frac{x^2+qx-1}{x^2\sqrt{x}} dx = \frac{2q}{\sqrt[q]{e}}\sqrt{2q\pi}$ V. T. 98, N. 13.

10) $\int e^{-\frac{1+x^2}{2qx}} lx \frac{x^2+3qx-1}{x^3\sqrt{x}} dx = \frac{1+q}{\sqrt[q]{e}} 2q\sqrt{2q\pi}$ V. T. 98, N. 14.

11) $\int e^{-px-\frac{q}{x}} lx \frac{2px^2 + (2a-1)x - 2q}{x^{a+\frac{3}{2}}} dx = 2\left(\frac{p}{q}\right)^{\frac{1}{2}a} e^{-2\sqrt{pq}}\sqrt{\frac{\pi}{q}} . \sum_0^\infty \frac{(a-n)^{2n/1}}{2^{n/2}(2\sqrt{pq})^n}$
V. T. 98, N. 17.

12) $\int \frac{lx}{e^x + e^{-x}} \frac{dx}{\sqrt{x}} = \sqrt{\pi} . \sum_0^\infty (-1)^{n+1} \frac{l(2n+1) + 2l2 + A}{\sqrt{2n+1}}$ (VIII, 487).

13) $\int \frac{lx}{e^x + 1 + e^{-x}} \frac{dx}{\sqrt{x}} = Cosec\frac{\pi}{3} . \sqrt{\pi} . \sum_1^\infty \left\{(-1)^n Sin\frac{1}{3}n\pi . \frac{ln + 2l2 + A}{\sqrt{n}}\right\}$ (VIII, 487).

14) $\int lx \frac{(2x-1)e^x - (2x+1)e^{-x}}{(e^x + e^{-x})^2} \frac{dx}{\sqrt{x}} = 2\sqrt{\pi} . \sum_0^\infty \frac{(-1)^n}{\sqrt{2n+1}}$ V. T. 98, N. 8.

15) $\int lx \frac{(2x-1)e^x - (2x+1)e^{-x} - 1}{(e^x + 1 + e^{-x})^2} \frac{dx}{\sqrt{x}} = 2\,Cosec\frac{\pi}{3} . \sqrt{\pi} . \sum_1^\infty (-1)^{n-1} \frac{Sin\frac{1}{3}n\pi}{\sqrt{n}}$ V. T. 98, N. 9.

1) $\int e^{-px^2+2qx}\, lx.(px^2-qx-1)\, x\, dx = \frac{q}{2p} e^{\frac{q^2}{p}} \sqrt{\frac{\pi}{p}}$ V. T. 100, N. 7.

2) $\int l(e^{px}+e^{-px}).\, x\, dx = 0$ (VIII, 273).

3) $\int \frac{1-e^{pxi}}{l(q-xi)} \frac{dx}{x} = \frac{2\pi i}{1-q}\{1-e^{p(q-1)}\}\, [q<1], = 0\, [q>1], = \pi p i\, [q=1]$ (VIII, 674).

4) $\int (-xi)^{p-1} e^{qxi} \frac{l\left(1+\frac{si}{x}\right)}{l\left(1+\frac{ri}{x}\right)} dx = 2\pi(1-s)^{p-1} e^{q(r-s)}\, l\frac{1-r}{1-r+s}\, [r<1]$

5) $\int \frac{e^{pxi}-e^{qxi}}{xi} \frac{dx}{l(1-xi)} = \pi(q-p)$

6) $\int \frac{e^{pxi}-e^{qxi}}{xi} \frac{dx}{l(r-xi)} = \frac{2\pi}{1-r}\{e^{p(r-1)}-e^{q(r-1)}\}\, [r<1], = 0\, [r>1]$

Sur 4) à 6) voyez Cauchy, Ann. Math. 17, 84.

7) $\int e^{sxi}(-xi)^{q-1}\, l\left(1+\frac{ri}{x}\right) \frac{dx}{p-xi} = 0$ (IV, 495).

8) $\int e^{sxi}(-xi)^{q-1}\, l\left(1+\frac{ri}{x}\right) \frac{dx}{p+xi} = 2\pi p^{q-1} e^{-ps}\, l\left(1+\frac{r}{p}\right)$ (IV, 495).

9) $\int e^{pxi}\, l(q+xi) \frac{dx}{(q+xi)^a} = \frac{2\pi}{1^{a/1}} p^{a-1} e^{-pq}\{Z'(a)-lp\}$ (IV, 495).

10) $\int e^{pxi}\, l(q-xi) \frac{dx}{(q-xi)^a} = 0$ (IV, 495).

11) $\int \frac{e^{-pxi}}{l(1+xi)} \frac{dx}{r^2+x^2} = \frac{\pi e^{-pr}}{r\, l(1+r)} - \frac{\pi}{r^2}$ (IV, 495).

12) $\int \frac{e^{-pxi}}{l(1+xi)} (xi)^q \frac{dx}{r^2+x^2} = \frac{\pi r^{q-1} e^{-pr}}{l(1+r)}$ (IV, 495).

13) $\int \frac{e^{qxi}}{l(1-pxi)} (-xi) \frac{dx}{1+x^2} = \frac{\pi e^{-q}}{l(1+p)}$ (IV, 495).

14) $\int \frac{e^{-axi}}{\{l(k+xi)\}^m} \frac{1}{(f+xi)^p (g+xi)^q \dots} \frac{dx}{b^2+x^2} = \frac{\pi}{b} e^{-ab} \frac{1}{(b+f)^p (b+g)^q \dots} \frac{1}{\{l(b+k)\}^m}$

(VIII, 610).

F. Algébrique; Exponentielle; Logarithmique.	TABLE 358, suite.	Lim. $-\infty$ et ∞.

15) $\int \frac{e^{-axi}}{\{l(k+xi)\}^m \{l(h+xi)\}^n \dots} \frac{1}{(f+xi)^p (g+xi)^q \dots} \frac{dx}{b^2+x^2} = \frac{\pi}{b} e^{-ab} \frac{1}{(b+f)^p (b+g)^q \dots} \frac{1}{\{l(b+k)\}^m \{l(b+h)\}^n \dots}$ (VIII, 610).

F. Algébrique; Exponentielle; Logarithmique.	TABLE 359.	Lim. 1 et ∞.

1) $\int e^{-2qx} l(2x-1) \frac{dx}{x} = \frac{1}{2} \{li(e^{-q})\}^2$ (IV, 496).

2) $\int \frac{e^{-2qx} lx}{2x-1} \{q(2x-1) l(2x-1) - 1\} dx = \frac{1}{4} \{li(e^{-q})\}^2$ V. T. 359, N. 1.

3) $\int_0^{l\frac{p^2}{q^2}} l\left\{\frac{p^2-q^2 e^x}{e^x-1}\right\} \frac{xe^{-x}}{\sqrt{\frac{p^2-q^2 e^x}{e^x-1}}} \frac{dx}{(1-e^{-x})^2} = -\frac{4\pi}{p+q} + \frac{4\pi}{p^2-q^2} l\frac{p^p}{q^q}$ V. T. 33, N. 1.

F. Algébrique; Exponentielle; Logarithmique.	Intégr. Lim. (Lim. $k=\infty$.) TABLE 360.	Lim. 0 et ∞.

1) $\int \frac{e^{-kx} lx}{e^x+e^{-x}} \frac{dx}{\sqrt{x}} = 0$ (VIII, 317).

2) $\int \frac{e^{-kx} lx}{e^x+e^{-x}+1} \frac{dx}{\sqrt{x}} = 0$ (VIII, 317).

F. Algébr. rat. ent.; Expon. $e^{\pm ax}$; Circul. Dir.	TABLE 361.	Lim. 0 et ∞.

1) $\int e^{-px} \operatorname{Sin} qx \,.\, x\, dx = \frac{2pq}{(p^2+q^2)^2}$ (VIII, 567).

2) $\int e^{-px} \operatorname{Sin} qx \,.\, x^2 dx = 2\frac{3p^2 q - q^3}{(p^2+q^2)^3}$ (IV, 497).

3) $\int e^{-px} \operatorname{Sin} qx \,.\, x^3 dx = 6\, pq \frac{p^2-q^2}{(p^2+q^2)^4}$ (IV, 497).

4) $\int e^{-px} \operatorname{Sin} qx \,.\, x^4 dx = 24 \frac{5p^4 q - 10 p^2 q^3 + q^5}{(p^2+q^2)^5}$ (IV, 497).

5) $\int e^{-px} \, Cos\, qx . x\, dx = \frac{p^2 - q^2}{(p^2+q^2)^2}$ (VIII, 567).

6) $\int e^{-px} \, Cos\, qx . x^2\, dx = 2\frac{p^3 - 3pq^2}{(p^2+q^2)^3}$ (IV, 497).

7) $\int e^{-px} \, Cos\, qx . x^3\, dx = 6\frac{p^4 - 6p^2q^2 + q^4}{(p^2+q^2)^4}$ (IV, 497).

8) $\int e^{-px} \, Cos\, qx . x^4\, dx = 24p\frac{p^4 - 10p^2q^2 + 5q^4}{(p^2+q^2)^5}$ (IV, 498).

9) $\int e^{-px} \, Sin\, qx . x^{r-1}\, dx = \frac{\Gamma(r)}{(p^2+q^2)^{\frac{1}{2}r}} Sin\left(r\, Arctg \frac{q}{p}\right)$ (VIII, 440).

10) $\int e^{-px} \, Cos\, qx . x^{r-1}\, dx = \frac{\Gamma(r)}{(p^2+q^2)^{\frac{1}{2}r}} Cos\left(r\, Arctg \frac{q}{p}\right)$ (VIII, 440).

11) $\int e^{qx\, Cos\, \lambda} Sin(qx\, Sin\, \lambda) . Sin\left(\frac{1}{2}p\pi - x\right) . x^{p-1}\, dx = \Gamma(p) \sum_1^\infty (-1)^n \binom{-p}{2n-1} q^{2n-1} Sin\{(2n-1)\lambda\}$
(VIII, 491).

12) $\int e^{qx\, Cos\, \lambda} Sin(qx\, Sin\, \lambda) . Cos\left(\frac{1}{2}p\pi - x\right) . x^{p-1}\, dx = \Gamma(p) \left\{1 + \sum_1^\infty (-1)^n \binom{-p}{2n} q^{2n} Sin\, 2n\lambda\right\}$
(VIII, 491).

13) $\int e^{qx\, Cos\, \lambda} Cos(qx\, Sin\, \lambda) . Sin\left(\frac{1}{2}p\pi - x\right) . x^{p-1}\, dx = \Gamma(p) \sum_1^\infty (-1)^n \binom{-p}{2n-1} q^{2n-1} Cos\{(2n-1)\lambda\}$
(VIII, 491).

14) $\int e^{qx\, Cos\, \lambda} Cos(qx\, Sin\, \lambda) . Cos\left(\frac{1}{2}p\pi - x\right) . x^{p-1}\, dx = \Gamma(p) \left\{1 + \sum_1^\infty (-1)^n \binom{-p}{2n} q^{2n} Cos\, 2n\lambda\right\}$
(VIII, 491).

15) $\int e^{-qx} \, Cos(2\sqrt{rx}) . x^{p-1}\, dx = \frac{1}{q^p} \Gamma(p) \sum_0^\infty \frac{(-1)^n}{1^{2n/1}} \frac{p^{n/1}}{q^n} (4r)^n$ (VIII, 514).

16) $\int e^{-qx} \, Cos(2x^2 + qx) . x\, dx = 0$ (IV, 499).

17) $\int e^{-qx} \, Cos(2x^2 - qx) . x\, dx = \frac{1}{8} q e^{-\frac{1}{4}q^2} \sqrt{\pi}$ (IV, 500).

18) $\int e^{-qx} \{Sin(2x^2 + qx) + Cos(2x^2 + qx)\} x^2\, dx = 0$ (IV, 499).

19) $\int e^{-qx} \{Sin(2x^2 - qx) - Cos(2x^2 - qx)\} x^2\, dx = \frac{1}{16} (2 - q^2) e^{-\frac{1}{4}q^2} \sqrt{\pi}$ (IV, 500).

20) $\int e^{-qx} (Cos\, px - i\, Sin\, px) . x^a\, dx = \frac{1^{a/1}}{(q+pi)^{a+1}}$ V. T. 81, N. 3.

1) $\int e^{-p^2x^2} Sin\, qx . x\, dx = \frac{q}{4p^3} e^{-\frac{q^2}{4p^2}} \sqrt{\pi}$ (VIII, 516*).

2) $\int e^{-p^2x^2} Cos\, qx . x\, dx = \frac{1}{2p^2} - \frac{q}{4p^3} \sum_0^\infty \frac{(-1)^n}{(n+1)^{n+1/1}} \left(\frac{q}{p}\right)^{2n+1}$ (IV, 500*).

3) $\int e^{-x^2 i} Sin\, qx . x\, dx = \frac{1+i}{4} q e^{-\frac{1}{4} q^2 i} \sqrt{\pi}$ (IV, 502).

4) $\int e^{-p^2x^2} Sin\, qx . x^2\, dx = \frac{q}{4p^4} + \frac{2p^2 - q^2}{8p^5} \sum_0^\infty \frac{(-1)^n}{(n+1)^{n+1/1}} \left(\frac{q}{p}\right)^{2n+1}$ (IV, 500*).

5) $\int e^{-p^2x^2} Cos\, qx . x^2\, dx = \frac{2p^2 - q^2}{8p^5} e^{-\frac{q^2}{4p^2}} \sqrt{\pi}$ (IV, 500*).

6) $\int e^{-p^2x^2} Sin\, qx . x^3\, dx = \frac{6p^2 q - q^3}{16p^7} e^{-\frac{q^2}{4p^2}} \sqrt{\pi}$ (IV, 500*).

7) $\int e^{-p^2x^2} Cos\, qx . x^3\, dx = \frac{4p^2 - q^2}{8p^6} - \frac{6p^2 q - q^3}{16p^7} \sum_0^\infty \frac{(-1)^n}{(n+1)^{n+1/1}} \left(\frac{q}{p}\right)^{2n+1}$ (IV, 501*).

8) $\int e^{-p^2x^2} Sin\, qx . x^4\, dx = \frac{10p^2 q - q^3}{16p^8} + \frac{12p^4 - 12p^2 q^2 + q^4}{32p^9} \sum_0^\infty \frac{(-1)^n}{(n+1)^{n+1/1}} \left(\frac{q}{p}\right)^{2n+1}$
(IV, 500*).

9) $\int e^{-p^2x^2} Cos\, qx . x^4\, dx = \frac{12p^4 - 12p^2 q^2 + q^4}{32p^9} e^{-\frac{q^2}{4p^2}} \sqrt{\pi}$ (IV, 501*).

10) $\int e^{-p^2x^2} Sin\, qx . x^5\, dx = \frac{60p^4 q - 20p^2 q^3 + q^5}{64p^{11}} e^{-\frac{q^2}{4p^2}} \sqrt{\pi}$ (IV, 500*).

11) $\int e^{-x^2} Sin\, qx . x^{2a-1}\, dx = \frac{a^{a/1}}{2^{2a}} e^{-\frac{1}{4} q^2} \sqrt{\pi} . \sum_0^\infty (-1)^n \frac{(a-1)^{n/-1}}{1^{2n+1/1}} q^{2n+1}$ (IV, 501).

12) $\int e^{-x^2} Cos\, qx . x^{2a}\, dx = \frac{(a+1)^{a/1}}{2^{2a+1}} e^{-\frac{1}{4} q^2} \sqrt{\pi} . \sum_0^\infty (-1)^n \frac{a^{n/-1}}{1^{2n/1}} q^{2n}$ (IV, 501).

13) $\int e^{-r^2x^2} Sin\, qx . x^{p-1}\, dx = \frac{\Gamma(p)}{q^p} Sin\, \frac{1}{2} p \pi . \left\{1 + \sum_1^\infty \frac{p^{2n/1}}{1^{n/1}} \left(\frac{r}{q}\right)^{2n}\right\}$ (VIII, 491).

14) $\int e^{-r^2x^2} Cos\, qx . x^{p-1}\, dx = \frac{\Gamma(p)}{q^p} Cos\, \frac{1}{2} p \pi . \left\{1 + \sum_1^\infty \frac{p^{2n/1}}{1^{n/1}} \left(\frac{r}{q}\right)^{2n}\right\}$ (VIII, 491).

15) $\int e^{-p^2x^2} Tg\, qx . x\, dx = \frac{q}{p^3} \sqrt{\pi} . \sum_1^\infty (-1)^n n e^{-\left(\frac{nq}{p}\right)^2}$ V. T. 467, N. 8.

F. Algébr. rat. ent.;
Expon. e^{-ax^2};
Circul. Dir.

TABLE 362, suite.

Lim. 0 et ∞.

16) $\int e^{-p^2x^2}\, Cot\, qx . x\, dx = -\frac{q}{p^3}\sqrt{\pi} . \sum_1^\infty n e^{-\left(\frac{nq}{p}\right)^2}$ V. T. 467, N. 7.

17) $\int e^{-p^2x^2}\, Cosec\, 2qx . x\, dx = -\frac{q}{p^3}\sqrt{\pi} . \sum_1^\infty (2n-1) e^{-(2n-1)^2\left(\frac{q}{p}\right)^2}$ V. T. 467, N. 9.

18) $\int e^{-p^2x^2}\, Cos\left(\frac{1}{2}a\pi + 2px\right) . x^a dx = \frac{(-1)^a}{(2r)^{a+1}}\, e^{-\frac{p^2}{4r^2}}\sqrt{\pi} . \sum_0^\infty (-1)^{n-1}\binom{a}{2n}(n+1)^{n/1}\left(\frac{p}{2r}\right)^{a-2n}$ (VIII, 575).

F. Algébr. rat. ent.;
Expon. d'autre forme mon.;
Circul. Dir.

TABLE 363.

Lim. 0 et ∞.

1) $\int e^{-qx^p}\, Sin(rx^p) . x^{s-1} dx = \frac{1}{p}\Gamma\left(\frac{s}{p}\right) . (q^2+r^2)^{-\frac{s}{2p}}\, Sin\left(\frac{s}{p}\, Arctg\frac{r}{q}\right)$ V. T. 361, N. 9.

2) $\int e^{-qx^p}\, Cos(rx^p) . x^{s-1} dx = \frac{1}{p}\Gamma\left(\frac{s}{p}\right) . (q^2+r^2)^{-\frac{s}{2p}}\, Cos\left(\frac{s}{p}\, Arctg\frac{r}{q}\right)$ V. T. 361, N. 10.

3) $\int e^{-r^2x^2 - x\, Cot\lambda}\, Sin\, x . x^{p-1} dx = \Gamma(p) . Sin^p\lambda . \left[Sin\, p\lambda + \sum_1^\infty \frac{p^{2n/1}}{1^{n/1}}(-r^2)^n Sin^{2n}\lambda . Sin\{(p+2n)\lambda\}\right]$ (VIII, 491).

4) $\int e^{-r^2x^2 - x\, Cot\lambda}\, Cos\, x . x^{p-1} dx = \Gamma(p) . Sin^p\lambda . \left[Cos\, p\lambda + \sum_1^\infty \frac{p^{2n/1}}{1^{n/1}}(-r^2)^n Sin^{2n}\lambda . Cos\{(p+2n)\lambda\}\right]$ (VIII, 491).

5) $\int e^{-px^2}\left(e^{2qx\, Sin\lambda} + e^{-2qx\, Sin\lambda}\right) Sin(2qx\, Cos\lambda) . x\, dx = \frac{q}{p}\, e^{-\frac{q^2}{p}Cos 2\lambda}\sqrt{\frac{\pi}{p}} . Cos\left(\lambda - \frac{q^2}{p}Sin\, 2\lambda\right)$ (IV, 502).

6) $\int e^{-px^2}\left(e^{2qx\, Sin\lambda} - e^{-2qx\, Sin\lambda}\right) Cos(2qx\, Cos\lambda) . x\, dx = \frac{q}{p}\, e^{-\frac{q^2}{p}Cos 2\lambda}\sqrt{\frac{\pi}{p}} . Sin\left(\lambda - \frac{q^2}{p}Sin\, 2\lambda\right)$ (IV, 502).

7) $\int e^{-p^2x^4 + q^2x^2}\left\{2px\, Cos(2pqx^3) + q\, Sin(2pqx^3)\right\} dx = \frac{1}{2}\sqrt{\pi}$ (IV, 503).

8) $\int e^{-p^2x^4 + q^2x^2}\left\{2px\, Sin(2pqx^3) - q\, Cos(2pqx^3)\right\} dx = 0$ (IV, 503).

9) $\int e^{-px^2 - \frac{q^2}{x^2}}\, Sin(px^2\, Tg\Phi) . x^2 dx = \frac{1}{4}\sqrt{\pi} . \left(\frac{1}{p}Cos\Phi\right)^{\frac{3}{2}} . Sin\left(2bq + \frac{3}{2}\Phi\right) . e^{-2aq} +$
$+ \frac{q}{2p}\sqrt{\pi} . Cos\Phi . Sin(2bq - \Phi) . e^{-2aq}$ (IV, 503).

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10) $\int e^{-px^2-\frac{q^2}{x^2}} Cos(px^2 Tg\Phi).x^2 dx = \frac{1}{4}\sqrt{\pi}.\left(\frac{1}{p} Cos\Phi\right)^{\frac{3}{2}}.Cos\left(2bq+\frac{3}{2}\Phi\right).e^{-2aq} +$

$+\frac{q}{2p}\sqrt{\pi}.Cos\Phi.Cos(2bq-\Phi).e^{-2aq}$ (IV, 503).

11) $\int e^{-px^2-\frac{q^2}{x^2}} Sin(px^2 Tg\Phi).x^4 dx = \frac{1}{2}\sqrt{\pi}.e^{-2aq}\left\{\frac{3}{4}\left(\frac{1}{p} Cos\Phi\right)^{\frac{5}{2}}.Sin\left(2bq+\frac{5}{2}\Phi\right)+\right.$

$\left.+\frac{q}{p^2}Cos^2\Phi.(Cos 2bq+Sin 2bq)+q^2\left(\frac{1}{p}Cos\Phi\right)^{\frac{3}{2}}.Sin\left(2bq-\frac{5}{2}\Phi\right)\right\}$ (IV, 503).

12) $\int e^{-px^2-\frac{q^2}{x^2}} Cos(px^2 Tg\Phi).x^4 dx = \frac{1}{2}\sqrt{\pi}.e^{-2aq}\left\{\frac{3}{4}\left(\frac{1}{p} Cos\Phi\right)^{\frac{5}{2}}.Cos\left(2bq+\frac{5}{2}\Phi\right)+\right.$

$\left.+\frac{q}{p^2}Cos^2\Phi.(Cos 2bq-Sin 2bq)+q^2\left(\frac{1}{p}Cos\Phi\right)^{\frac{3}{2}}.Cos\left(2bq-\frac{5}{2}\Phi\right)\right\}$ (IV, 503).

Dans 9) à 12) on a $a=\sqrt{\frac{1}{2}p(Sec\Phi+1)}, b=\sqrt{\frac{1}{2}p(Sec\Phi-1)}$

13) $\int e^{(p^2-q^2)\left(x^2+\frac{r^2}{x^2}\right)} Sin\left\{2pq\left(x^2-\frac{r^2}{x^2}\right)\right\}.x^{2a}dx = \frac{1}{2r}e^{-2r\sqrt{(p^2+q^2)}}Cos\left\{(2a+1)Arcsin\left(\frac{p}{\sqrt{p^2+q^2}}\right)\right\}.$

$.\frac{\sqrt{\pi}}{(p^2+q^2)^{a+\frac{1}{2}}}\sum_0^\infty \frac{(a-n)^{n|1}}{2^{n/2}(2r)^n\sqrt{p^2+q^2}^n}$ $[p>q]$ (IV, 504).

14) $\int e^{(p^2-q^2)\left(x^2+\frac{r^2}{x^2}\right)} Cos\left\{2pq\left(x^2-\frac{r^2}{x^2}\right)\right\}.x^{2a}dx = \frac{1}{2r}e^{-2r\sqrt{(p^2+q^2)}}Sin\left\{(2a+1)Arcsin\left(\frac{p}{\sqrt{p^2+q^2}}\right)\right\}.$

$.\frac{\sqrt{\pi}}{(p^2+q^2)^{a+\frac{1}{2}}}\sum_0^\infty \frac{(a-n)^{n|1}}{2^{n/2}(2r)^n\sqrt{p^2+q^2}^n}$ $[p>q]$ (IV, 504).

15) $\int e^{-q\left(x^2+\frac{1}{x^2}\right)} Sin\left\{p\left(x-\frac{1}{x}\right)^2\right\}.x^{2a}dx = \frac{1}{2}e^{-2(q+pi)}\sqrt{\frac{\pi}{q+pi}}.\sum_0^\infty \frac{(a+n)^{2n|-1}}{2^{n/2}}\left\{\frac{1}{2(p+qi)}\right\}^n$

(IV, 504).

16) $\int e^{-q\left(x^2+\frac{1}{x^2}\right)} Cos\left\{p\left(x-\frac{1}{x}\right)^2\right\}.x^{2a}dx = \frac{1}{2}e^{-2(q+pi)}\sqrt{\frac{\pi}{q+pi}}.\sum_0^\infty \frac{(a+n)^{2n|-1}}{2^{n/2}}\left\{\frac{1}{2(p+qi)}\right\}^n$

(IV, 504).

F. Algébr. rat. ent.;
Expon. en dén. binôme; TABLE 364. Lim. 0 et ∞.
Circul. Dir.

1) $\int \frac{Cos\, q x}{e^{x} - e^{-x}}\, x\, dx = \frac{1}{2} \pi^{2} \frac{e^{-q\pi}}{(1 + e^{-q\pi})^{2}}$ (IV, 504).

2) $\int \frac{e^{x} - e^{-x}}{e^{x} + e^{-x}}\, Cos\, q x . x\, dx = -\frac{1}{2} \pi^{2} e^{-\frac{1}{2} q\pi} \frac{1 + e^{-q\pi}}{(1 - e^{-q\pi})^{2}}$ (IV, 504).

3) $\int \frac{e^{x} + e^{-x}}{e^{x} - e^{-x}}\, Cos\, q x . x\, dx = -\pi^{2} \frac{e^{-q\pi}}{(1 - e^{-q\pi})^{2}}$ (IV, 505).

4) $\int \frac{e^{x} - 1}{e^{x} + 1}\, Cos\, q x . x\, dx = -2\pi^{2} e^{-q\pi} \frac{1 + e^{-2q\pi}}{(1 - e^{-2q\pi})^{2}}$ V. T. 364, N. 1, 3.

5) $\int \frac{e^{x} + 1}{e^{x} - 1}\, Cos\, q x . x\, dx = \frac{-4\pi^{2}}{(e^{q\pi} - e^{-q\pi})^{2}}$ V. T. 364, N. 1, 3.

6) $\int \frac{x\, Sin\, q x}{e^{\pi x} + e^{-\pi x}}\, dx = \frac{1}{4} \frac{e^{\frac{1}{2} q} - e^{-\frac{1}{2} q}}{(e^{\frac{1}{2} q} + e^{-\frac{1}{2} q})^{2}}$ (IV, 505).

7) $\int \frac{x\, Cos\, q x}{e^{\pi x} - e^{-\pi x}}\, dx = \frac{1}{2} \frac{e^{q}}{(e^{q} + 1)^{2}}$ (IV, 505*).

8) $\int \frac{(1 - e^{-2px})\, Sin\, q x . e^{-px} x^{r-1}}{1 + 2 e^{-2px} Cos\, 2 q x + e^{-4px}}\, dx = \frac{\Gamma(r)}{(p^{2} + q^{2})^{\frac{1}{2} r}} Sin\left(r\, Arctg \frac{q}{p}\right) . \sum_{0}^{\infty} \frac{(-1)^{n}}{(2n + 1)^{r}}$

Clausen, Gr. 30, 167.

F. Alg. rat. fract. à dén. x;
Exponent. $e^{\pm a x}$; TABLE 365. Lim. 0 et ∞.
Circ. Dir. monôme au num.

1) $\int e^{-px}\, Sin\, q x \frac{dx}{x} = Arctg \frac{q}{p}$ (VIII, 344).

2) $\int e^{-pxi}\, Sin\, q x \frac{dx}{x} = \frac{1}{2} i\, l \frac{p - q}{p + q}$ (IV, 505).

3) $\int e^{-px}\, Cos\, q x \frac{dx}{x} = \infty$ (IV, 505).

4) $\int e^{-px}\, Sin^{2} q x \frac{dx}{x} = \frac{1}{4} l \frac{p^{2} + 4 q^{2}}{p^{2}}$ (VIII, 458).

5) $\int e^{-px}\, Sin\, q x . Sin\, r x \frac{dx}{x} = \frac{1}{4} l \frac{p^{2} + (q + r)^{2}}{p^{2} + (q - r)^{2}}$ V. T. 284, N. 6.

6) $\int e^{-px}\, Sin\, r x . Cos\, q x \frac{dx}{x} = \frac{1}{2} Arctg \frac{2 p r}{p^{2} + q^{2} - r^{2}}$ (VIII, 345).

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7) $\int e^{-px} Sin^3 qx \frac{dx}{x} = \frac{1}{2} Arctg \frac{q}{p} - \frac{1}{4} Arctg \frac{2q}{p}$

8) $\int e^{-px} Sin^2 qx \,.\, Sin rx \frac{dx}{x} = \frac{1}{2} Arctg \frac{r}{p} - \frac{1}{4} Arctg \frac{2pr}{p^2+q^2-r^2}$

9) $\int e^{-px} Sin^2 qx \,.\, Cos rx \frac{dx}{x} = \frac{1}{8} l \frac{\{p^2+(2q+r)^2\}\{p^2+(2q-r)^2\}}{(p^2+r^2)^2}$

10) $\int e^{-px} Sin qx \,.\, Cos^2 rx \frac{dx}{x} = \frac{1}{2} Arctg \frac{q}{p} + \frac{1}{4} Arctg \frac{2pq}{p^2+r^2-q^2}$

11) $\int e^{-px} Sin qx \,.\, Sin rx \,.\, Sin sx \frac{dx}{x} = -\frac{1}{4} Arctg \frac{q+r+s}{p} + \frac{1}{4} Arctg \frac{q-r+s}{p} + \frac{1}{4} Arctg \frac{q+r-s}{p} -$

$- \frac{1}{4} Arctg \frac{q-r-s}{p}$

12) $\int e^{-px} Sin^4 qx \frac{dx}{x} = \frac{1}{8} l \frac{(p^2+4q^2)^2}{p^3} - \frac{1}{16} l (p^2+16q^2)$

13) $\int e^{-px} Sin^3 qx \,.\, Cos rx \frac{dx}{x} = \frac{3}{8} Arctg \frac{q+r}{p} + \frac{3}{8} Arctg \frac{q-r}{p} - \frac{1}{8} Arctg \frac{3q+r}{p} - \frac{1}{8} Arctg \frac{3q-r}{p}$

14) $\int e^{-px} Sin^2 qx \,.\, Sin^2 rx \frac{dx}{x} = \frac{1}{8} l \frac{p^2+4r^2}{p^2} + \frac{1}{16} l \frac{(p^2+4q^2)^2}{\{p^2+4(q+r)^2\}\{p^2+4(q-r)^2\}}$

15) $\int e^{-px} Sin^2 qx \,.\, Sin rx \,.\, Sin sx \frac{dx}{x} = \frac{1}{8} l \frac{p^2+(r+s)^2}{p^2+(r-s)^2} + \frac{1}{16} l \frac{\{p^2+(2q-r+s)^2\}\{p^2+(2q+r-s)^2\}}{\{p^2+(2q+r+s)^2\}\{p^2+(2q-r-s)^2\}}$

16) $\int e^{-px} Sin^2 qx \,.\, Sin rx \,.\, Cos sx \frac{dx}{x} = \frac{1}{4} Arctg \frac{r+s}{p} + \frac{1}{4} Arctg \frac{r-s}{p} - \frac{1}{8} Arctg \frac{2q+r+s}{p} +$

$+ \frac{1}{8} Arctg \frac{2q-r-s}{p} + \frac{1}{8} Arctg \frac{2q-r+s}{p} - \frac{1}{8} Arctg \frac{2q+r-s}{p}$

Sur 7) à 16) voyez E. O. A.

17) $\int e^{-px} Sin^2 qx \,.\, Cos^2 rx \frac{dx}{x} = \frac{1}{16} l \left\{ \frac{(p^2+4q^2)^2}{p^4} \; \frac{\{p^2+4(q+r)^2\}\{p^2-4(q-r)^2\}}{(p^2+4r^2)^2} \right\}$

V. T. 365, N. 4, 9.

18) $\int e^{-px} Sin^5 qx \frac{dx}{x} = \frac{5}{8} Arctg \frac{q}{p} - \frac{5}{16} Arctg \frac{3q}{p} + \frac{1}{16} Arctg \frac{5q}{p}$

19) $\int e^{-px} Sin^3 qx \,.\, Sin^2 rx \frac{dx}{x} = \frac{1}{16} Arctg \frac{3q+2r}{p} + \frac{1}{16} Arctg \frac{3q-2r}{p} - \frac{3}{16} Arctg \frac{q+2r}{p} -$

$- \frac{3}{16} Arctg \frac{q-2r}{p} - \frac{1}{8} Arctg \frac{3q}{p} + \frac{3}{8} Arctg \frac{q}{p}$

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20) $\int e^{-px} Sin^2 qx . Sin^2 rx . Sin sx \frac{dx}{x} = -\frac{1}{16} Arctg \frac{2q-2r-s}{p} - \frac{1}{16} Arctg \frac{2q+2r-s}{p} + \frac{1}{16} Arctg \frac{2q-2r+s}{p} + \frac{1}{16} Arctg \frac{2q+2r+s}{p} - \frac{1}{8} Arctg \frac{2q+s}{p} + \frac{1}{8} Arctg \frac{2q-s}{p} - \frac{1}{8} Arctg \frac{2r+s}{p} + \frac{1}{8} Arctg \frac{2r-s}{p} + \frac{1}{4} Arctg \frac{s}{p}$

Sur 17) à 20) voyez E. O. A.

21) $\int e^{-p^2x^2} Sin qx \frac{dx}{x} = \frac{q}{2p} \sqrt{\pi} . \sum_0^\infty \frac{(-1)^n}{(2n+1) 1^{n/1}} \left(\frac{q}{2p}\right)^{2n}$ (IV, 506).

F. Alg. rat. fract. à dén. x;
Expon. de Circ. Directe; TABLE 366. Lim. 0 et ∞.
Circ. Dir. monôme au num.

1) $\int e^{s Cos rx} Sin (s Sin rx) \frac{dx}{x} = \frac{1}{2} \pi (e^s - 1)$ (VIII, 640).

2) $\int e^{s Cos rx} Sin (arx + p Sin rx) \frac{dx}{x} = \frac{\pi}{2} e^s$ (VIII, 640*).

3) $\int e^{s Cos rx} Sin (s Sin rx) . Cos arx \frac{dx}{x} = \frac{\pi}{2} \sum_a^\infty \frac{1}{1^{n/1}} s^n$ (VIII, 640*).

4) $\int e^{s Cos rx} Cos (s Sin rx) . Sin arx \frac{dx}{x} = \frac{\pi}{2} \sum_0^a \frac{1}{1^{n/1}} s^n$ (VIII, 640*).

5) $\int e^{s Cos rx + s_1 Cos r_1 x + \cdots} Sin (s Sin rx + s_1 Sin r_1 x + \ldots) \frac{dx}{x} = \frac{\pi}{2} (e^{s+s_1+\cdots} - 1)$ (H, 16).

6) $\int e^{s Cos rx + s_1 Cos r_1 x + \cdots} Sin (s Sin rx + s_1 Sin r_1 x + \ldots + x) \frac{dx}{x} = \frac{\pi}{2} e^{s+s_1+\cdots}$ (H, 16).

7) $\int e^{s Cos rx + s_1 Cos r_1 x + \cdots} Sin (s Sin rx + s_1 Sin r_1 x + \ldots - x) \frac{dx}{x} = \frac{\pi}{2} (e^{s+s_1+\cdots} - 2)$ (H, 16).

8) $\int e^{s Cos rx + s_1 Cos r_1 x + \cdots} Sin (s Sin rx + s_1 Sin r_1 x + \ldots + tx) \frac{dx}{x} = \frac{\pi}{2} e^{s+s_1+\cdots}$ (H, 17).

9) $\int e^{s Cos rx + s_1 Cos r_1 x + \cdots} Sin (s Sin rx + s_1 Sin r_1 x + \ldots) . Cos x \frac{dx}{x} = \frac{\pi}{2} (e^{s+s_1+\cdots} - 1)$ (H, 16).

10) $\int e^{s Cos rx + s_1 Cos r_1 x + \cdots} Sin (s Sin rx + s_1 Sin r_1 x + \ldots + tx) . Cos x \frac{dx}{x} = \frac{\pi}{2} e^{s+s_1+\cdots}$ (H, 17).

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11) $\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots}\,Cos\,(r\,Sin\,sx+r_1\,Sin\,s_1x+\dots).Sin\,x\frac{dx}{x}=\frac{\pi}{2}$ (H, 16).

12) $\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots}\,Cos\,(r\,Sin\,sx+r_1\,Sin\,s_1x+\dots+tx).Sin\,x\frac{dx}{x}=0$ (H, 17).

13) $\int e^{t\,Cos\,ux+t_1\,Cos\,u_1x+\dots}\,Cos^s rx.Cos^{s_1}r_1x\dots Sin\,\{(sr+s_1r_1+\dots)x+t\,Sin\,ux+t_1\,Sin\,u_1x+\dots\}\frac{dx}{x}=$
$=\frac{\pi}{2}e^{t+t_1+\dots}$ (H, 19).

14) $\int e^{t\,Cos\,ux+t_1\,Cos\,u_1x+\dots}\,Cos^s rx.Cos^{s_1}r_1x\dots Sin\,\{(sr+s_1r_1+\dots+1)x+t\,Sin\,ux+t_1\,Sin\,u_1x+\dots\}\frac{dx}{x}=$
$=\frac{\pi}{2}e^{t+t_1+\dots}$ (H, 20).

15) $\int e^{t\,Cos\,ux+t_1\,Cos\,u_1x+\dots}\,Cos^s rx.Cos^{s_1}r_1x\dots Sin\,\{(sr+s_1r_1+\dots-1)x+t\,Sin\,ux+t_1\,Sin\,u_1x+\dots\}\frac{dx}{x}=$
$=\frac{\pi}{2^{s+s_1+\dots}}\{2^{s+s_1+\dots-1}e^{t+t_1+\dots}-1\}$ (H, 20).

16) $\int e^{t\,Cos\,ux+t_1\,Cos\,u_1x+\dots}\,Cos^s rx.Cos^{s_1}r_1x\dots Sin\,\{(sr+s_1r_1+\dots)x+t\,Sin\,ux+t_1\,Sin\,u_1x+\dots\}.$
$Cos\,x\frac{dx}{x}=\frac{\pi}{2^{1+s+s_1+\dots}}\{2^{s+s_1+\dots}e^{t+t_1+\dots}-1\}$ (H, 20).

17) $\int e^{t\,Cos\,ux+t_1\,Cos\,u_1x+\dots}\,Cos^s rx.Cos^{s_1}r_1x\dots Cos\,\{(sr+s_1r_1+\dots)x+t\,Sin\,ux+t_1\,Sin\,u_1x+\dots\}.$
$Sin\,x\frac{dx}{x}=\frac{\pi}{2^{1+s+s_1+\dots}}$ (H, 20).

18) $\int e^{t\,Cos\,ux+t_1\,Cos\,u_1x+\dots}\,Cos^s rx.Cos^{s_1}r_1x\dots Sin\,\{(sr+s_1r_1+\dots+p)x+t\,Sin\,ux+t_1\,Sin\,u_1x+\dots\}\frac{dx}{x}=$
$=\frac{\pi}{2}e^{t+t_1+\dots}$ (H, 23).

19) $\int e^{t\,Cos\,ux+t_1\,Cos\,u_1x+\dots}\,Cos^s rx.Cos^{s_1}r_1x\dots Sin\,\{(sr+s_1r_1+\dots+p)x+t\,Sin\,ux+t_1\,Sin\,u_1x+\dots\}.$
$Cos\,x\frac{dx}{x}=\frac{\pi}{2}e^{t+t_1+\dots}$ (H, 23).

20) $\int e^{t\,Cos\,ux+t_1\,Cos\,u_1x+\dots}\,Cos^s rx.Cos^{s_1}r_1x\dots Cos\,\{(sr+s_1r_1+\dots+p)x+t\,Sin\,ux+t_1\,Sin\,u_1x+\dots\}.$
$Sin\,x\frac{dx}{x}=0$ (H, 23).

21) $$\int e^{t\,Cos\,ux+t_1\,Cos\,u_1x+\dots}\,Cos^q px\,.\,Cos^{q_1}p_1x\dots Sin^s rx\,.\,Sin^{s_1}r_1x\dots Sin\Big\{(s+s_1+\dots)\frac{1}{2}\pi-(qp+q_1p_1+\dots+sr+s_1r_1+\dots)x-t\,Sin\,ux-t_1\,Sin\,u_1x-\dots\Big\}\frac{dx}{x}=\frac{\pi}{2^{1+q+q_1+\dots+s+s_1+\dots}}$$ (H, 21).

22) $$\int e^{t\,Cos\,ux+t_1\,Cos\,u_1x+\dots}\,Cos^q px\,.\,Cos^{q_1}p_1x\dots Sin^s rx\,.\,Sin^{s_1}r_1x\dots Sin\Big\{(s+s_1+\dots)\frac{1}{2}\pi-(qp+q_1p_1+\dots+sr+s_1r_1+\dots+1)x-t\,Sin\,ux-t_1\,Sin\,u_1x-\dots\Big\}\frac{dx}{x}=0$$ (H, 22).

23) $$\int e^{t\,Cos\,ux+t_1\,Cos\,u_1x+\dots}\,Cos^q px\,.\,Cos^{q_1}p_1x\dots Sin^s rx\,.\,Sin^{s_1}r_1x\dots Sin\Big\{(s+s_1+\dots)\frac{1}{2}\pi-(qp+q_1p_1+\dots+sr+s_1r_1+\dots-1)x-t\,Sin\,ux-t_1\,Sin\,u_1x-\dots\Big\}\frac{dx}{x}=\frac{\pi}{2^{q+q_1+\dots+s+s_1+\dots}}$$ (H, 22).

24) $$\int e^{t\,Cos\,ux+t_1\,Cos\,u_1x+\dots}\,Cos^q px\,.\,Cos^{q_1}p_1x\dots Sin^s rx\,.\,Sin^{s_1}r_1x\dots Sin\Big\{(s+s_1+\dots)\frac{1}{2}\pi-(qp+q_1p_1+\dots+sr+s_1r_1+\dots+w)x-t\,Sin\,ux-t_1\,Sin\,u_1x-\dots\Big\}\frac{dx}{x}=0$$ (H, 23).

25) $$\int e^{t\,Cos\,ux+t_1\,Cos\,u_1x+\dots}\,Cos^q px\,.\,Cos^{q_1}p_1x\dots Sin^s rx\,.\,Sin^{s_1}r_1x\dots Sin\Big\{(s+s_1+\dots)\frac{1}{2}\pi-(qp+q_1p_1+\dots+sr+s_1r_1+\dots)x-t\,Sin\,ux-t_1\,Sin\,u_1x-\dots\Big\}.Cos\,x\frac{dx}{x}=\frac{\pi}{2^{1+q+q_1+\dots+s+s_1+\dots}}$$ (H, 21).

26) $$\int e^{t\,Cos\,ux+t_1\,Cos\,u_1x+\dots}\,Cos^q px\,.\,Cos^{q_1}p_1x\dots Sin^s rx\,.\,Sin^{s_1}r_1x\dots Sin\Big\{(s+s_1+\dots)\frac{1}{2}\pi-(qp+q_1p_1+\dots+sr+s_1r_1+\dots+w)x-t\,Sin\,ux-t_1\,Sin\,u_1x-\dots\Big\}.Cos\,x\frac{dx}{x}=0$$ (H, 23).

27) $$\int e^{t\,Cos\,ux+t_1\,Cos\,u_1x+\dots}\,Cos^q px\,.\,Cos^{q_1}p_1x\dots Sin^s rx\,.\,Sin^{s_1}r_1x\dots Cos\Big\{(s+s_1+\dots)\frac{1}{2}\pi-(qp+q_1p_1+\dots+sr+s_1r_1+\dots)x-t\,Sin\,ux-t_1\,Sin\,u_1x-\dots\Big\}.Sin\,x\frac{dx}{x}=\frac{\pi}{2^{1+q+q_1+\dots+s+s_1+\dots}}$$ (H, 21).

28) $$\int e^{t\,Cos\,ux+t_1\,Cos\,u_1x+\dots}\,Cos^q px\,.\,Cos^{q_1}p_1x\dots Sin^s rx\,.\,Sin^{s_1}r_1x\dots Cos\Big\{(s+s_1+\dots)\frac{1}{2}\pi-(qp+q_1p_1+\dots+sr+s_1r_1+\dots+w)x-t\,Sin\,ux-t_1\,Sin\,u_1x-\dots\Big\}.Sin\,x\frac{dx}{x}=0$$ (H, 23).

1) $\int \frac{1-e^{-qx}}{x} \operatorname{Sin} px\, dx = \operatorname{Arctg} \frac{q}{p}$ V. T. 367, N. 3.

2) $\int \frac{1-e^{-qx}}{x} \operatorname{Cos} px\, dx = \frac{1}{2} l \frac{p^2+q^2}{p^2}$ V. T. 367, N. 4.

3) $\int \frac{e^{-qx}-e^{-rx}}{x} \operatorname{Sin} px\, dx = \operatorname{Arctg} \frac{(r-q)p}{p^2+qr}$ (VIII, 359).

4) $\int \frac{e^{-qx}-e^{-rx}}{x} \operatorname{Cos} px\, dx = \frac{1}{2} l \frac{p^2+r^2}{p^2+q^2}$ (VIII, 359).

5) $\int \left(\operatorname{Cos} qx - \frac{e^{px}+e^{-px}}{2x}\right) \frac{dx}{x} = l \frac{p}{q}$ (VIII, 456).

6) $\int \frac{1-\operatorname{Cos} px}{x} e^{-qx}\, dx = \frac{1}{2} l \frac{p^2+q^2}{q^2}$ (VIII, 581).

7) $\int \frac{\operatorname{Sin} px - \operatorname{Sin} qx}{x} e^{-rx}\, dx = \operatorname{Arctg} \frac{(p-q)r}{pq+r^2}$ V. T. 367, N. 3.

8) $\int \frac{\operatorname{Cos} px - \operatorname{Cos} qx}{x} e^{-rx}\, dx = \frac{1}{2} l \frac{q^2+r^2}{p^2+r^2}$ (VIII, 581).

9) $\int \frac{e^{-px} - \operatorname{Cos} qx}{x} dx = l \frac{q}{p}$ (VIII, 441).

10) $\int \frac{e^{-px} - e^{-qx} \operatorname{Cos} rx}{x} dx = \frac{1}{2} l \frac{q^2+r^2}{p^2}$ V. T. 367, N. 12.

11) $\int \frac{e^{-px} \operatorname{Sin} qx - e^{-rx} \operatorname{Sin} sx}{x} dx = \operatorname{Arctg} \frac{qr-ps}{pr+qs}$ (VIII, 337).

12) $\int \frac{e^{-px} \operatorname{Cos} qx - e^{-rx} \operatorname{Cos} sx}{x} dx = \frac{1}{2} l \frac{r^2+s^2}{p^2+q^2}$ (VIII, 337).

13) $\int \left\{ e^{-x^{2^a}} - \operatorname{Cos}(x^{2^b}) \right\} dx = \left(\frac{1}{2^b} - \frac{1}{2^a} \right) \mathrm{A}$ (VIII, 702).

14) $\int \frac{e^{p \operatorname{Sin} x} - e^{-p \operatorname{Sin} x}}{x} \operatorname{Cos}(p \operatorname{Cos} x) . \operatorname{Sin} x . \operatorname{Sin} 2ax\, dx = \pi p^{2a} \frac{(-1)^a}{1^{2a+1/1}}$ (VIII, 279*).

15) $\int \frac{e^{p \operatorname{Sin} x} + e^{-p \operatorname{Sin} x}}{x} \operatorname{Cos}(p \operatorname{Cos} x) . \operatorname{Sin} x . \operatorname{Cos}\{(2a-1)x\}\, dx = \pi p^{2a} \frac{(-1)^a}{1^{2a/1}}$ (VIII, 279).

16) $\int \frac{e^{p \operatorname{Sin} x} + e^{-p \operatorname{Sin} x}}{x} \operatorname{Sin}(p \operatorname{Cos} x) . \operatorname{Sin} ax\, dx = \pi \sum_0^a \frac{(-p)^n}{1^{2n+1/1}}$ (VIII, 639).

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17) $\int \frac{e^{p\,Sin\,x} - e^{-p\,Sin\,x}}{x} Sin(p\,Cos\,x) . Cos\,ax\,dx = -\pi \sum_a^\infty \frac{(-p)^n}{1^{2n/1}}$ (VIII, 639).

18) $\int \frac{e^{p\,Sin\,x} + e^{-p\,Sin\,x}}{x} Cos(p\,Cos\,x) . Sin\,ax\,dx = \pi \sum_0^a \frac{(-p)^n}{1^{2n/1}}$ (VIII, 639).

19) $\int \frac{e^{p\,Sin\,x} - e^{-p\,Sin\,x}}{x} Cos(p\,Cos\,x) . Cos\,ax\,dx = \pi \sum_a^\infty \frac{(-p)^n}{1^{2n+1/1}}$ (VIII, 639).

20) $\int \frac{e^{p\,Sin\,x} + e^{-p\,Sin\,x}}{x} Cos(p\,Cos\,x) . Cos\,x . Sin\{(2a-1)x\}\,dx = \pi p^{2a} \frac{(-1)^{a-1}}{1^{2a/1}} + \pi \sum_0^{2a} \frac{(-p)^n}{1^{2n/1}}$

V. T. 367, N. 15, 18.

21) $\int \frac{e^{p\,Sin\,x} - e^{-p\,Sin\,x}}{x} Cos(p\,Cos\,x) . Cos\,x . Cos\,2ax\,dx = \pi p^{2a} \frac{(-1)^a}{1^{2a+1/1}} + \pi \sum_{2a+1}^\infty \frac{(-p)^n}{1^{2n+1/1}}$

V. T. 367, N. 14, 19.

F. Alg. rat. fract. à dén. x^2; Exponent. e^{ax}; Circul. Directe. TABLE 368. Lim. 0 et ∞.

1) $\int e^{-px} Sin\,qx . Sin\,rx \frac{dx}{x^2} = \frac{q}{2} Arctg\left(\frac{2pr}{p^2+q^2-r^2}\right) + \frac{r}{2} Arctg\left(\frac{2pq}{p^2-q^2+r^2}\right) + \frac{p}{4} l \frac{p^2+(r-q)^2}{p^2+(r+q)^2}$

(VIII, 345).

2) $\int e^{-px} Sin^2 qx \frac{dx}{x^2} = q\,Arctg \frac{2q}{p} - \frac{p}{4} l \frac{p^2+4q^2}{p^2}$ (VIII, 345*).

3) $\int e^{-px} Cos^2 qx \frac{dx}{x^2} = \infty$ (VIII, 361).

4) $\int e^{-px} Sin\,qx . Sin\,rx . Sin\,sx \frac{dx}{x^2} = \frac{p}{4} Arctg \frac{q+r+s}{p} - \frac{p}{4} Arctg \frac{q-r+s}{p} - \frac{p}{4} Arctg \frac{q+r-s}{p} +$

$+ \frac{p}{4} Arctg \frac{q-r-s}{p} + \frac{q+r+s}{8} l\{p^2+(q+r+s)^2\} - \frac{q+r-s}{8} l\{p^2+(q+r-s)^2\} -$

$- \frac{q-r+s}{8} l\{p^2+(q-r+s)^2\} + \frac{q-r-s}{8} l\{p^2+(q-r-s)^2\}$ (E. O. A).

5) $\int e^{-px} Sin\,qx . Sin\,rx . Cos\,qx \frac{dx}{x^2} = \frac{q+r+s}{4} Arctg \frac{q+r+s}{p} - \frac{q-r+s}{4} Arctg \frac{q-r+s}{p} -$

$- \frac{q+r-s}{4} Arctg \frac{q+r-s}{p} + \frac{q-r-s}{4} Arctg \frac{q-r-s}{p} + \frac{p}{8} l \frac{p^2+(q-r+s)^2}{p^2+(q+r+s)^2} +$

$+ \frac{p}{8} l \frac{p^2+(q+r-s)^2}{p^2+(q-r-s)^2}$ (VIII, 346).

6) $\int e^{-px} Sin^2 qx . Sin rx \frac{dx}{x^2} = \frac{p}{4} Arctg \frac{2q+r}{p} - \frac{p}{4} Arctg \frac{2q-r}{p} - \frac{p}{2} Arctg \frac{r}{p} + \frac{2q+r}{8} l \{p^2+(2q+r)^2\} - \frac{2q-r}{8} l \{p^2+(2q-r)^2\} - \frac{r}{4} l(p^2+r^2)$

7) $\int e^{-px} Sin^2 qx . Cos rx \frac{dx}{x^2} = \frac{2q+r}{4} Arctg \frac{2q+r}{p} - \frac{2q-r}{4} Arctg \frac{r-2q}{p} - \frac{r}{2} Arctg \frac{r}{p} + \frac{p}{8} l \frac{(p^2+r^2)^2}{\{p^2+(2q+r)^2\}\{p^2+(2q-r)^2\}}$

8) $\int e^{-px} Sin^3 qx \frac{dx}{x^2} = \frac{p}{4} Arctg \frac{3q}{p} - \frac{3p}{4} Arctg \frac{q}{p} + \frac{3q}{8} l \frac{p^2+9q^2}{p^2+q^2}$

9) $\int e^{-px} Sin^2 qx . Sin rx . Sin sx \frac{dx}{x^2} = \frac{r+s}{4} Arctg \frac{r+s}{p} - \frac{r-s}{4} Arctg \frac{r-s}{p} - \frac{2q+r+s}{8} Arctg \frac{2q+r+s}{p} + \frac{2q-r+s}{8} Arctg \frac{2q-r+s}{p} + \frac{2q+r-s}{8} Arctg \frac{2q+r-s}{p} - \frac{2q-r-s}{8} Arctg \frac{2q-r-s}{p} + \frac{p}{8} l \frac{p^2+(r-s)^2}{p^2+(r+s)^2} + \frac{p}{16} l \frac{\{p^2+(2q+r+s)^2\}\{p^2+(2q-r-s)^2\}}{\{p^2+(2q-r+s)^2\}\{p^2+(2q+r-s)^2\}}$

10) $\int e^{-px} Sin^2 qx . Sin^2 rx \frac{dx}{x^2} = \frac{r}{2} Arctg \frac{2r}{p} - \frac{q+r}{4} Arctg \frac{2(q+r)}{p} - \frac{q-r}{4} Arctg \frac{2(q-r)}{p} + \frac{q}{2} Arctg \frac{2q}{p} - \frac{p}{8} l \frac{p^2+4r^2}{p^2} + \frac{p}{16} l \frac{\{p^2+4(q+r)^2\}\{p^2+4(q-r)^2\}}{(p^2+4q^2)^2}$

11) $\int e^{-px} Sin^2 qx . Sin rx . Cos sx \frac{dx}{x^2} = \frac{p}{8} Arctg \frac{2q+r+s}{p} - \frac{p}{8} Arctg \frac{2q-r+s}{p} + \frac{p}{8} Arctg \frac{2q+r-s}{p} - \frac{p}{8} Arctg \frac{2q-r-s}{p} - \frac{p}{4} Arctg \frac{r+s}{p} - \frac{p}{4} Arctg \frac{r-s}{p} + \frac{2q+r+s}{16} l \{p^2+(2q+r+s)^2\} - \frac{2q-r+s}{16} l \{p^2+(2q-r+s)^2\} + \frac{2q+r-s}{16} l \{p^2+(2q+r-s)^2\} - \frac{2q-r-s}{16} l \{p^2+(2q-r-s)^2\} - \frac{s+r}{8} l \{p^2+(s+r)^2\} + \frac{s-r}{8} l \{p^2+(s+r)^2\}$

12) $\int e^{-px} Sin qx . Sin rx . Cos^2 qx \frac{dx}{x^2} = \frac{q+r}{4} Arctg \frac{q+r}{p} - \frac{q-r}{4} Arctg \frac{q-r}{p} + \frac{q+r+2s}{8} Arctg \frac{q+r+2s}{p} - \frac{q+r-2s}{8} Arctg \frac{q+r-2s}{p} - \frac{q-r+2s}{p} Arctg \frac{q-r+2s}{p} + \frac{q-r-2s}{8} Arctg \frac{q-r-2s}{p} + \frac{p}{8} l \frac{p^2+(q-r)^2}{p^2+(q+r)^2} + \frac{p}{16} l \frac{\{p^2+(q-r+2s)^2\}\{p^2+(q+r-2s)^2\}}{\{p^2+(q+r+2s)^2\}\{p^2+(q-r-2s)^2\}}$

13) $\int e^{-px} Sin^2 qx . Cos^2 rx \frac{dx}{x^2} = \frac{q}{2} Arctg \frac{2q}{p} + \frac{q+r}{4} Arctg \frac{2(q+r)}{p} - \frac{q-r}{4} Arctg \frac{2(r-q)}{p} -$

$- \frac{r}{2} Arctg \frac{2r}{p} - \frac{p}{8} l \frac{p^2+4q^2}{p^2} + \frac{p}{16} l \frac{(p^2+4r^2)^2}{\{p^2+4(q+r)^2\}\{p^2+4(q-r)^2\}}$

14) $\int e^{-px} Sin^3 qx . Cos rx \frac{dx}{x^2} = \frac{p}{8} Arctg \frac{3q+r}{p} - \frac{p}{8} Arctg \frac{r-3q}{p} - \frac{3p}{8} Arctg \frac{q+r}{p} +$

$+ \frac{3p}{8} Arctg \frac{r-q}{p} + \frac{3q+r}{16} pl\{p^2+(3q+r)^2\} + \frac{3q-r}{16} pl\{p^2+(3q-r)^2\} -$

$- \frac{q+r}{16} 3pl\{p^2+(q+r)^2\} + \frac{q-r}{16} 3pl\{p^2+(q-r)^2\}$

15) $\int e^{-px} Sin^4 qx \frac{dx}{x^2} = q Arctg \frac{2q}{p} - \frac{q}{2} Arctg \frac{4q}{p} - \frac{p}{8} l \frac{(p^2+4q^2)^2}{p^3} + \frac{p}{16} l (p^2+16q^2)$

16) $\int e^{-px} Sin^2 qx . Sin^2 rx . Sin sx \frac{dx}{x^2} = \frac{p}{16} Arctg \frac{2q-2r-s}{p} + \frac{p}{16} Arctg \frac{2q+2r-s}{p} - \frac{p}{16}$

$Arctg \frac{2q-2r+s}{p} - \frac{p}{16} Arctg \frac{2q+2r+s}{p} + \frac{p}{8} Arctg \frac{2q+s}{p} - \frac{p}{8} Arctg \frac{2q-s}{p} + \frac{p}{8}$

$Arctg \frac{2r+s}{p} - \frac{p}{8} Arctg \frac{2r-s}{p} - \frac{p}{4} Arctg \frac{s}{p} - \frac{2q+2r+s}{32} l\{p^2+(2q+2r+s)^2\} -$

$- \frac{2q-2r+s}{32} l\{p^2+(2q-2r+s)^2\} + \frac{2q+2r-s}{32} l\{p^2+(2q+2r-s)^2\} +$

$+ \frac{2q-2r-s}{32} l\{p^2+(2q-2r-s)^2\} + \frac{2q+s}{16} l\{p^2+(2q+s)^2\} - \frac{2q-s}{16} p$

$l\{p^2+(2q-s)^2\} + \frac{2r+s}{16} l\{p^2+(2r+s)^2\} - \frac{2r-s}{16} l\{p^2+(2r-s)^2\} - \frac{1}{8} psl(p^2+s^2)$

17) $\int e^{-px} Sin^3 qx . Sin^2 rx \frac{dx}{x^2} = \frac{3p}{16} Arctg \frac{q+2r}{p} - \frac{3p}{16} Arctg \frac{2r-q}{p} - \frac{p}{16} Arctg \frac{3q+2r}{p} +$

$+ \frac{p}{16} Arctg \frac{2r-3q}{p} + \frac{p}{8} Arctg \frac{3q}{p} - \frac{3p}{8} Arctg \frac{q}{p} - \frac{3q+2r}{32} l\{p^2+(3q+2r)^2\} -$

$- \frac{3q-2r}{32} l\{p^2+(3q-2r)^2\} + 3\frac{q+2r}{32} l\{p^2+(q+2r)^2\} +$

$+ 3\frac{q-2r}{32} l\{p^2+(q-2r)^2\} + \frac{3q}{16} l \frac{p^2+9q^2}{p^2+q^2}$

18) $\int e^{-px} Sin^2 qx . Sin rx . Cos^2 sx \frac{dx}{x^2} = \frac{(2q+r+2s)^2-p^2}{32} Arctg \frac{2q+r+2s}{p} + \frac{(2q-r-2s)^2-p^2}{32}$

$Arctg \frac{2q-r-2s}{p} + \frac{(2q-r+2s)^2-p^2}{32} Arctg \frac{2q-r+2s}{p} - \frac{(2q+r-2s)^2-p^2}{32}$

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$$\mathrm{Arctg}\frac{2q+r-2s}{p}-\frac{(r+2s)^2-p^2}{16}\mathrm{Arctg}\frac{r+2s}{p}-\frac{(r-2s)^2-p^2}{16}\mathrm{Arctg}\frac{r-2s}{p}+$$

$$+\frac{(2q+r)^2-p^2}{16}\mathrm{Arctg}\frac{2q+r}{p}-\frac{(2q-r)^2-p^2}{16}\mathrm{Arctg}\frac{2q-r}{p}+\frac{p^2-r^2}{8}\mathrm{Arctg}\frac{r}{p}-$$

$$-\frac{2q+r+2s}{32}pl\{p^2+(2q+r+2s)^2\}+\frac{2q-r-2s}{32}pl\{p^2+(2q-r-2s)^2\}+$$

$$+\frac{2q-r+2s}{32}pl\{p^2+(2q-r+2s)^2\}+\frac{2q+r-2s}{32}pl\{p^2+(2q+r-2s)^2\}+$$

$$+\frac{r+2s}{16}pl\{p^2+(r+2s)^2\}+\frac{r-2s}{16}pl\{p^2+(r-2s)^2\}-\frac{2q+r}{16}pl\{p^2+(2q+r)^2\}+$$

$$+\frac{2q-r}{16}pl\{p^2+(2q-r)^2\}+\frac{1}{8}prl(p^2+r^2)$$

19) $$\int e^{-px}\,\mathrm{Sin}^5 qx\frac{dx}{x^2}=-\frac{5p}{8}\mathrm{Arctg}\frac{q}{p}+\frac{5p}{16}\mathrm{Arctg}\frac{3q}{p}-\frac{p}{16}\mathrm{Arctg}\frac{5q}{p}-\frac{5q}{16}l(p^2+q^2)+$$

$$+\frac{15q}{32}l(p^2+9q^2)-\frac{5q}{32}l(p^2+25q^2)$$

Sur 6) à 19) voyez E. O. A.

20) $$\int\frac{\mathrm{Cos}\,qx-\mathrm{Cos}\,rx}{x^2}e^{-px}dx=\frac{p}{2}l\frac{p^2+q^2}{p^2+r^2}+r\,\mathrm{Arctg}\frac{r}{p}-q\,\mathrm{Arctg}\frac{q}{p}$$ V. T. 368, N. 26.

21) $$\int\frac{e^{-px}-e^{-qx}}{x^2}\mathrm{Sin}\,rx\,dx=\frac{r}{2}l\frac{q^2+r^2}{p^2+r^2}+q\,\mathrm{Arctg}\frac{r}{q}-p\,\mathrm{Arctg}\frac{q}{p}$$ (IV, 509).

22) $$\int\{qe^{-px}\,\mathrm{Sin}\,rx-re^{-sx}\,\mathrm{Sin}\,qx\}\frac{dx}{x^2}=qr\left\{\frac{1}{2}l\frac{q^2+s^2}{p^2+r^2}+\frac{s}{q}\mathrm{Arccot}\frac{s}{q}-\frac{p}{r}\mathrm{Arccot}\frac{p}{r}\right\}$$

23) $$\int\{q-e^{-px}(p\,\mathrm{Sin}\,qx+q\,\mathrm{Cos}\,qx)\}\frac{dx}{x^2}=(p^2+q^2)\,\mathrm{Arctg}\frac{q}{p}$$

24) $$\int\left\{qe^{-px}-\frac{1}{x}\mathrm{Sin}\,qx.e^{-rx}\right\}\frac{dx}{x}=\frac{q}{2}l\frac{q^2+r^2}{q^2}+r\,\mathrm{Arctg}\frac{q}{r}-q$$

Sur 22) à 24) voyez Winckler, Sitz. Ber. Wien. 21, 389.

25) $$\int\frac{\mathrm{Sin}^2 qx-\mathrm{Sin}^2 rx}{x^2}e^{-px}dx=q\,\mathrm{Arctg}\frac{2q}{p}-r\,\mathrm{Arctg}\frac{2r}{p}+\frac{p}{4}l\frac{p^2+4r^2}{p^2+4q^2}$$ V. T. 368, N. 26.

26) $$\int\frac{\mathrm{Cos}^2 qx-\mathrm{Cos}^2 rx}{x^2}e^{-px}dx=r\,\mathrm{Arctg}\frac{2r}{p}-q\,\mathrm{Arctg}\frac{2q}{p}+\frac{p}{4}l\frac{p^2+4q^2}{p^2+4r^2}$$ (VIII, 361).

1) $\int e^{-px^2} Sin\left(\frac{2q^2}{x^2}\right)\frac{dx}{x^2} = e^{-2pq}\frac{Sin\,2pq + Cos\,2pq}{4q}\sqrt{\pi}$ V. T. 268, N. 12.

2) $\int e^{-px^2} Cos\left(\frac{2q^2}{x^2}\right)\frac{dx}{x^2} = e^{-2pq}\frac{Cos\,2pq - Sin\,2pq}{4q}\sqrt{\pi}$ V. T. 268, N. 13.

3) $\int e^{-\frac{1}{x^2}} Sin(2p^2x^2)\frac{dx}{x^2} = \frac{1}{2}e^{-2p} Sin\,2p.\sqrt{\pi}$ V. T. 263, N. 12.

4) $\int e^{-\frac{1}{x^2}} Cos(2p^2x^2)\frac{dx}{x^2} = \frac{1}{2}e^{-2p} Cos\,2p.\sqrt{\pi}$ V. T. 263, N. 13.

5) $\int e^{-px^2-\frac{q^2}{x^2}} Sin\left(\frac{r}{x^2}\right)\frac{dx}{x^2} = \frac{1}{2}e^{-2pg}\sqrt{\frac{\pi}{q^2+r^2}}.(f\,Cos\,2fp + g\,Sin\,2fp)$ V. T. 268, N. 14.

6) $\int e^{-px^2-\frac{q^2}{x^2}} Cos\left(\frac{r}{x^2}\right)\frac{dx}{x^2} = \frac{1}{2}e^{-2pg}\sqrt{\frac{\pi}{q^2+r^2}}.(g\,Cos\,2fp - f\,Sin\,2fp)$ V. T. 268, N. 15.

7) $\int e^{-\frac{1}{4}q^2x^2-\frac{p^2}{x^2}Cos\,2\lambda} Sin\left(\frac{p^2}{x^2}Sin\,2\lambda\right)\frac{dx}{x^2} = \frac{\sqrt{\pi}}{2p}e^{-pq\,Cos\,\lambda} Sin(\lambda + pq\,Cos\,\lambda)$ V. T. 268, N. 16.

8) $\int e^{-\frac{1}{4}q^2x^2-\frac{p^2}{x^2}Cos\,2\lambda} Cos\left(\frac{p^2}{x^2}Sin\,2\lambda\right)\frac{dx}{x^2} = \frac{\sqrt{\pi}}{2p}e^{-pq\,Cos\,\lambda} Cos(\lambda + pq\,Sin\,\lambda)$ V. T. 268, N. 17.

9) $\int e^{-q\left(x^2+\frac{1}{x^2}\right)} Sin\left\{s\left(x^2+\frac{1}{x^2}\right)\right\}\frac{dx}{x^2} = \frac{1}{2}\sqrt{\frac{\pi\,Cos\,2\beta}{q}}.e^{-2p} Sin(\beta + 2\,Tg\,2\beta)$ V. T. 268, N. 20.

10) $\int e^{-q\left(x^2+\frac{1}{x^2}\right)} Cos\left\{s\left(x^2+\frac{1}{x^2}\right)\right\}\frac{dx}{x^2} = \frac{1}{2}\sqrt{\frac{\pi\,Cos\,2\beta}{q}}.e^{-2p} Cos(\beta + 2\,Tg\,2\beta)$ V. T. 268, N. 21.

11) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} Sin\left(rx^2+\frac{s}{x^2}\right)\frac{dx}{x^2} = \frac{\sqrt{\pi}}{2a}e^{-2ab\,Cos(\alpha+\beta)} Sin\{2ab\,Sin(\alpha+\beta)+\alpha\}$

V. T. 268, N. 22.

12) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} Cos\left(rx^2+\frac{s}{x^2}\right)\frac{dx}{x^2} = \frac{\sqrt{\pi}}{2a}e^{-2ab\,Cos(\alpha+\beta)} Cos\{2ab\,Sin(\alpha+\beta)+\alpha\}$

V. T. 268, N. 23.

13) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} Sin\left(rx^2-\frac{s}{x^2}\right)\frac{dx}{x^2} = \frac{\sqrt{\pi}}{2a}e^{-2ab\,Cos(\alpha-\beta)} Sin\{2ab\,Sin(\beta-\alpha)-\alpha\}$

V. T. 268, N. 24.

14) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} Cos\left(rx^2-\frac{s}{x^2}\right)\frac{dx}{x^2} = \frac{\sqrt{\pi}}{2a}e^{-2ab\,Cos(\alpha-\beta)} Cos\{2ab\,Sin(\alpha-\beta)+\alpha\}$

V. T. 268, N. 25.

15) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} Sin\, rx^2 . Sin \frac{s}{x^2} \frac{dx}{x^2} = \frac{\sqrt{\pi}}{4a} \left\{ e^{-2ab\,Cos(\alpha-\beta)}\, Cos\left\{2ab\,Sin(\alpha-\beta)+\alpha\right\} - \right.$

$\left. - e^{-2ab\,Cos(\alpha+\beta)}\, Cos\left\{2ab\,Sin(\alpha+\beta)+\alpha\right\}\right\}$ V. T. 268, N. 26.

16) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} Sin\, rx^2 . Cos \frac{s}{x^2} \frac{dx}{x^2} = \frac{\sqrt{\pi}}{4a} \left\{ e^{-2ab\,Cos(\alpha+\beta)}\, Sin\left\{2ab\,Sin(\alpha+\beta)+\alpha\right\} - \right.$

$\left. - e^{-2ab\,Cos(\alpha-\beta)}\, Sin\left\{2ab\,Sin(\alpha-\beta)+\alpha\right\}\right\}$ V. T. 268, N. 27.

17) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} Cos\, rx^2 . Sin \frac{s}{x^2} \frac{dx}{x^2} = \frac{\sqrt{\pi}}{4a} \left\{ e^{-2ab\,Cos(\alpha+\beta)}\, Sin\left\{2ab\,Sin(\alpha+\beta)+\alpha\right\} + \right.$

$\left. + e^{-2ab\,Cos(\alpha-\beta)}\, Sin\left\{2ab\,Sin(\alpha-\beta)+\alpha\right\}\right\}$ V. T. 268, N. 28.

18) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} Cos\, rx^2 . Cos \frac{s}{x^2} \frac{dx}{x^2} = \frac{\sqrt{\pi}}{4a} \left\{ e^{-2ab\,Cos(\alpha+\beta)}\, Cos\left\{2ab\,Sin(\alpha+\beta)+\alpha\right\} + \right.$

$\left. + e^{-2ab\,Cos(\alpha-\beta)}\, Cos\left\{2ab\,Sin(\alpha-\beta)+\alpha\right\}\right\}$ V. T. 268, N. 29.

Dans 6) à 18) on a $a^4 = p^2 + r^2$, $b^4 = q^2 + s^2$, $f = \sqrt{\frac{-p+\sqrt{p^2+r^2}}{2}}$,

$g = \sqrt{\frac{p+\sqrt{p^2+r^2}}{2}}$, $\alpha = \frac{1}{2} Arctg \frac{r}{p}$, $\beta = \frac{1}{2} Arctg \frac{s}{q}$.

19) $\int e^{-x^2} \frac{2x\,Cos\,x - Sin\,x}{x^2} Sin\,x\,dx = \frac{e-1}{2e}\sqrt{\pi}$ (IV, 509).

20) $\int e^{s\,Cos\,rx + s_1 Cos\,r_1 x + \dots} Sin\left(s\,Sin\,rx + s_1\,Sin\,r_1 x + \dots\right) . Sin\,x \frac{dx}{x^2} = \frac{\pi}{2}\left(e^{s+s+\dots} - 1\right)$ (H, 16).

21) $\int e^{s\,Cos\,rx + x_1 Cos\,r_1 x + \dots} Sin\left(s\,Sin\,rx + s_1\,Sin\,r_1 x + \dots + px\right) . Sin\,x \frac{dx}{x^2} = \frac{\pi}{2} e^{s+s_1+\dots}$ (H, 17).

22) $\int e^{t\,Cos\,ux + t_1 Cos\,u_1 x + \dots} Cos^s rx . Cos^{s_1} r_1 x \dots Sin\left\{(sr + s_1 r_1 + \dots)x + t\,Sin\,ux + t_1\,Sin\,u_1 x + \dots\right\} . Sin\,x \frac{dx}{x^2} =$

$= \frac{\pi}{2^{1+s+s_1+\dots}} \left\{2^{s+s_1+\dots} e^{t+t_1+\dots} - 1\right\}$ (H, 20).

23) $\int e^{t\,Cos\,ux + t_1 Cos\,u_1 x + \dots} Cos^s rx . Cos^{s_1} r_1 x \dots Sin\left\{(sr + s_1 r_1 + \dots + p)x + t\,Sin\,ux + t_1\,Sin\,ux + \dots\right\}.$

$Sin\,x \frac{dx}{x^2} = \frac{\pi}{2} e^{t+t_1+\dots}$ (H, 23).

24) $\int e^{t\,Cos\,ux+t_1\,Cos\,u_1x+\cdots}\,Sin^s rx\,.\,Sin^{s_1} r_1x\ldots Cos^q px\,.\,Cos^{q_1} p_1x\ldots Sin\Big\{(s+s_1+\ldots)\frac{1}{2}\pi -$

$-(qp+q_1p_1+\ldots+sr+s_1r_1+\ldots)x - t\,Sin\,ux - t_1\,Sin\,u_1x - \ldots\Big\}\,.\,Sin\,x\,\frac{dx}{x^2} =$

$= \frac{\pi}{2^{1+q+q_1+\ldots+s+s_1+\ldots}}$ (H, 22).

25) $\int e^{t\,Cos\,ux+t_1\,Cos\,u_1x+\cdots}\,Sin^s rx\,.\,Sin^{s_1} r_1x\ldots Cos^q px\,.\,Cos^{q_1} p_1x\ldots Sin\Big\{(s+s_1+\ldots)\frac{1}{2}\pi -$

$-(qp+q_1p_1+\ldots+sr+s_1r_1+\ldots+w)x - t\,Sin\,ux - t_1\,Sin\,u_1x - \ldots\Big\}\,.\,Sin\,x\,\frac{dx}{x^2} = 0$

(H, 23).

F. Alg. rat. fract. à dén. x^3, x^4;
Exponentielle;
Circul. Directe.

TABLE 370.

Lim. 0 et ∞.

1) $\int e^{-px}\,Sin\,qx\,.\,Sin\,rx\,.\,Sin\,sx\,\frac{dx}{x^3} = \frac{(q+r+s)^2-p^2}{8}\,Arctg\,\frac{q+r+s}{p} - \frac{(q-r+s)^2-p^2}{8}$

$Arctg\,\frac{q-r+s}{p} - \frac{(q+r-s)^2-p^2}{8}\,Arctg\,\frac{q+r-s}{p} + \frac{(q-r-s)^2-p^2}{8}\,Arctg\,\frac{q-r-s}{p} +$

$+ \frac{q-r+s}{8}\,p\,l\,\{p^2+(q-r+s)^2\} + \frac{q+r-s}{8}\,p\,l\,\{p^2+(q+r-s)^2\} - \frac{q+r+s}{8}$

$p\,l\,\{p^2+(q+r+s)^2\} - \frac{q-r-s}{8}\,p\,l\,\{p^2+(q-r-s)^2\}$ (VIII, 346).

2) $\int e^{-px}\,Sin^2 qx\,.\,Sin\,rx\,\frac{dx}{x^3} = \frac{(2q+r)^2-p^2}{8}\,Arctg\,\frac{2q+r}{p} - \frac{(2q-r)^2-p^2}{8}\,Arctg\,\frac{2q-r}{p} +$

$+ \frac{p^2-r^2}{4}\,Arctg\,\frac{r}{p} + \frac{2q-r}{8}\,p\,l\,\{p^2+(2q-r)^2\} - \frac{2q+r}{8}\,p\,l\,\{p^2+(2q+r)^2\} +$

$+ \frac{1}{4}\,p\,r\,l(p^2+r^2)$ (VIII, 345).

3) $\int e^{-px}\,Sin^3 qx\,\frac{dx}{x^3} = \frac{9q^2-p^2}{8}\,Arctg\,\frac{3q}{p} - 3\,\frac{p^2-q^2}{8}\,Arctg\,\frac{q}{p} + \frac{3pq}{8}\,l\,\frac{p^2+q^2}{p^2+9q^2}$ (VIII, 345).

4) $\int e^{-px}\,Sin^2 qx\,.\,Sin\,rx\,.\,Cos\,sx\,\frac{dx}{x^3} = \frac{(2q+r+s)^2-p^2}{16}\,Arctg\,\frac{2q+r+s}{p} - \frac{(2q-r+s)^2-p^2}{16}$

$Arctg\,\frac{2q-r+s}{p} - \frac{(2q+r-s)^2-p^2}{16}\,Arctg\,\frac{2q+r-s}{p} + \frac{(2q-r-s)^2-p^2}{16}$

$$Arctg\frac{2q-r-s}{p}-\frac{(r+s)^2-p^2}{8}Arctg\frac{r+s}{p}+\frac{(r-s)^2-p^2}{8}Arctg\frac{r-s}{p}-$$
$$-\frac{2q+r+s}{16}pl\{p^2+(2q+r+s)^2\}+\frac{2q-r+s}{16}pl\{p^2+(2q-r+s)^2\}+$$
$$+\frac{2q+r-s}{16}pl\{p^2+(2q+r-s)^2\}-\frac{2q-r-s}{16}pl\{p^2+(2q-r-s)^2\}+$$
$$+\frac{r+s}{8}pl\{p^2+(r+s)^2\}-\frac{r-s}{8}pl\{p^2+(r-s)^2\}$$

5) $$\int e^{-px}Sin^3qx\,.\,Cos\,rx\frac{dx}{x^3}=\frac{(3q+r)^2-p^2}{16}Arctg\frac{3q+r}{p}+\frac{(3q-r)^2-p^2}{16}Arctg\frac{3q-r}{p}-$$
$$-3\frac{(q+r)^2-p^2}{16}Arctg\frac{q+r}{p}-3\frac{(q-r)^2-p^2}{16}Arctg\frac{q-r}{p}-\frac{3q+r}{16}pl\{p^2+(3q+r)^2\}-$$
$$-\frac{3q-r}{16}pl\{p^2+(3q-r)^2\}+\frac{q+r}{16}3pl\{p^2+(q+r)^2\}+\frac{q-r}{16}3pl\{p^2+(q-r)^2\}$$

6) $$\int e^{-px}Sin^4qx\frac{dx}{x^3}=\frac{1}{2}pq\,Arctg\frac{4q}{p}-pq\,Arctg\frac{2q}{p}-\frac{p^2-16q^2}{32}l(p^2+16q^2)+$$
$$+\frac{p^2-4q^2}{8}l(p^2+4q^2)-\frac{3p^2}{16}lp$$

7) $$\int e^{-px}Sin^2qx\,.\,Sin^2rx\,.\,Sin\,sx\frac{dx}{x^3}=\frac{(2q-2r-s)^2-p^2}{32}Arctg\frac{2q-2r-s}{p}+\frac{(2q+2r-s)^2-p^2}{32}$$
$$Arctg\frac{2q+2r-s}{p}-\frac{(2q-2r+s)^2-p^2}{32}Arctg\frac{2q-2r+s}{p}-\frac{(2q+2r+s)^2-p^2}{32}$$
$$Arctg\frac{2q+2r+s}{p}+\frac{(2q+s)^2-p^2}{16}Arctg\frac{2q+s}{p}-\frac{(2q-s)^2-p^2}{16}Arctg\frac{2q-s}{p}+$$
$$+\frac{(2r+s)^2-p^2}{16}Arctg\frac{2r+s}{p}-\frac{(2r-s)^2-p^2}{16}Arctg\frac{2r-s}{p}+\frac{p^2-s^2}{8}Arctg\frac{s}{p}+$$
$$+\frac{2q+2r+s}{32}pl\{p^2+(2q+2r+s)^2\}+\frac{2q-2r+s}{32}pl\{p^2+(2q-2r+s)^2\}-$$
$$-\frac{2q+2r-s}{32}pl\{p^2+(2q+2r-s)^2\}-\frac{2q-2r-s}{32}pl\{p^2+(2q-2r-s)^2\}-$$
$$-\frac{2q+s}{16}pl\{p^2+(2q+s)^2\}+\frac{2q-s}{16}pl\{p^2+(2q-s)^2\}-\frac{2r+s}{16}pl\{p^2+(2r+s)^2\}+$$
$$+\frac{2r-s}{16}pl\{p^2+(2r-s)^2\}+\frac{1}{8}psl(p^2+s^2)$$

8) $\int e^{-px} Sin^2 q x . Sin^3 r x \frac{dx}{x^3} = 3 \frac{(2q+r)^2 - p^2}{32} Arctg \frac{2q+r}{p} - 3 \frac{(2q-r)^2 - p^2}{32} Arctg \frac{2q-r}{p} -$

$- \frac{(2q+3r)^2 - p^2}{32} Arctg \frac{2q+3r}{p} + \frac{(2q-3r)^2 - p^2}{32} Arctg \frac{2q-3r}{p} + \frac{9r^2 - p^2}{16}$

$Arctg \frac{3r}{p} + 3 \frac{p^2 - r^2}{16} Arctg \frac{r}{p} + \frac{2q+3r}{32} p\, l \{p^2 + (2q+3r)^2\} - \frac{2q-3r}{32} p$

$l\{p^2 + (2q-3r)^2\} - \frac{2q+r}{32} 3p\, l\{p^2 + (2q+r)^2\} + \frac{2q-r}{32} 3p\, l\{p^2 + (2q-r)^2\} +$

$+ \frac{3}{16} p r\, l \frac{p^2 + r^2}{p^2 + 9r^2}$

9) $\int e^{-px} Sin^3 q x . Cos^2 r x \frac{dx}{x^3} = \frac{(3q+2r)^2 - p^2}{32} Arctg \frac{3q+2r}{p} + \frac{(3q-2r)^2 - p^2}{32} Arctg \frac{3q-2r}{p} -$

$- 3 \frac{(q+2r)^2 - p^2}{32} Arctg \frac{q+2r}{p} - 3 \frac{(q-2r)^2 - p^2}{32} Arctg \frac{q-2r}{p} + \frac{9q^2 - p^2}{16} Arctg \frac{3q}{p} +$

$+ 3 \frac{p^2 - q^2}{16} Arctg \frac{q}{p} - \frac{3q+2r}{32} p\, l\{p^2 + (3q+2r)^2\} - \frac{3q-2r}{32} p\, l\{p^2 + (3q-2r)^2\} +$

$+ \frac{q+2r}{32} 3p\, l\{p^2 + (q+2r)^2\} + \frac{q-2r}{32} 3p\, l\{p^2 + (q-2r)^2\} + \frac{3}{16} p q\, l \frac{p^2 + q^2}{p^2 + 9q^2}$

10) $\int e^{-px} Sin^5 q x \frac{dx}{x^3} = 5 \frac{p^2 - q^2}{16} Arctg \frac{q}{p} + 5 \frac{9q^2 - p^2}{32} Arctg \frac{3q}{p} - \frac{25q^2 - p^2}{32} Arctg \frac{5q}{p} +$

$+ \frac{5pq}{16} l(p^2 + q^2) - \frac{15pq}{32} l(p^2 + 9q^2) + \frac{5pq}{32} l(p + 25q^2)$

Sur 4) à 10) voyez E. O. A.

11) $\int e^{s Cos r x + s_1 Cos r_1 x + \dots} Sin (s Sin r x + s_1 Sin r_1 x + \dots) . Sin^2 x \frac{dx}{x^3} = \frac{\pi}{2} \left\{ e^{s + s_1 + \dots} - 1 - \frac{1}{4}(s + s_1 + \dots) \right\}$

(H, 16).

12) $\int e^{s Cos r x + s_1 Cos r_1 x + \dots} Sin (s Sin r x + s_1 Sin r_1 x + \dots + p x) . Sin^2 x \frac{dx}{x^3} = \frac{\pi}{2} \left\{ e^{s + s_1 + \dots} - \frac{1}{4} \right\}$

(H, 17).

13) $\int e^{t Cos u x + t_1 Cos u_1 x + \dots} Cos^s r x . Cos^{s_1} r_1 x \dots Sin \{(s r + s_1 r_1 + \dots) x + t Sin u x + t_1 Sin u_1 x + \dots\} .$

$Sin^2 x \frac{dx}{x^3} = \frac{\pi}{2^{1+s+s_1+\dots}} \left\{ 2^{s+s_1+\dots} e^{t+t_1+\dots} - 1 - \frac{1}{4}(s + s_1 + \dots + t + t_1 + \dots) \right\}$ (H, 20).

14) $\int e^{t Cos u x + t_1 Cos u_1 x + \dots} Cos^s r x . Cos^{s_1} r_1 x \dots Sin \{(s r + s_1 r_1 + \dots + p) x + t Sin u x + t_1 Sin u_1 x + \dots\} .$

$Sin^2 x \frac{dx}{x^3} = \frac{\pi}{2^{3+s+s_1+\dots}} \{ 2^{2+s+s_1+\dots} e^{t+t_1+\dots} - 1 \}$ (H, 23).

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F. Alg. rat. fract. à dén. x^3, x^4;
Exponentielle;
Circul. Directe.

TABLE 370, suite.

Lim. 0 et ∞.

15) $\int e^{t \, Cos\, ux + t_1 Cos\, u_1 x + \dots} Sin^s rx . Sin^{s_1} r_1 x \dots Cos^q px . Cos^{q_1} p_1 x \dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi - \right.$

$\left. -(qp+q_1p_1+\dots+sr+s_1r_1+\dots)x - t\, Sin\, ux - t_1\, Sin\, u_1 x - \dots\right\} . Sin^2 x \frac{dx}{x^3} =$

$= \frac{\pi}{2^{3+q+q_1+\dots+s+s_1+\dots}}\{4+q+q_1+\dots+s+s_1+\dots+t+t_1+\dots\}$ (H, 22).

16) $\int e^{t \, Cos\, ux + t_1 Cos\, u_1 x + \dots} Sin^s rx . Sin^{s_1} r_1 x \dots Cos^q px . Cos^{q_1} p_1 x \dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi - \right.$

$\left. -(qp+q_1p_1+\dots+sr+s_1r_1+\dots+w)x - t\, Sin\, ux - t_1\, Sin\, u_1 x - \dots\right\} . Sin^2 x \frac{dx}{x^3} =$

$= \frac{\pi}{2^{3+q+q_1+\dots+s+s_1+\dots}}$ (H, 24).

17) $\int e^{-px} Sin^4 qx \frac{dx}{x^4} = \frac{16q^3 - 3p^2 q}{12} Arctg \frac{4q}{p} - \frac{4q^3 - 3p^2 q}{6} Arctg \frac{2q}{p} - \frac{48pq^2 - p^3}{96}$

$l(p^2+16q^2) + \frac{12pq^2 - p^3}{24} l(p^2+4q^2) + \frac{1}{16}p^3\, lp$ (E. O. A.).

F. Alg. rat. fract. à dén. x^p;
Exponentielle;
Circul. Directe.

TABLE 371.

Lim. 0 et ∞.

1) $\int e^{-qx} Sin\, rx \frac{dx}{x^p} = \frac{\Gamma(1-p)}{(q^2+r^2)^{\frac{1}{2}(1-p)}} Sin\left\{(1-p) Arctg \frac{r}{q}\right\}$ $[p<1]$ (VIII, 440*).

2) $\int e^{-qx} Cos\, rx \frac{dx}{x^p} = \frac{\Gamma(1-p)}{(q^2+r^2)^{\frac{1}{2}(1-p)}} Cos\left\{(1-p) Arctg \frac{r}{q}\right\}$ $[p<1]$ (VIII, 440*).

3) $\int e^{-qx} Sin\left\{r\left(\frac{\pi}{2}+x\right)\right\}\frac{dx}{x^p} = \frac{\pi}{\Gamma(p)} \frac{(q^2+r^2)^{\frac{1}{2}(p-1)}}{Sin\, p\pi} Sin\left\{\frac{1}{2}p\pi + (1-p) Arctg \frac{r}{q}\right\}$ $[p<1]$
(VIII, 540).

4) $\int e^{-qx} Cos\left\{r\left(\frac{\pi}{2}+x\right)\right\}\frac{dx}{x^p} = \frac{\pi}{\Gamma(p)} \frac{(q^2+r^2)^{\frac{1}{2}(p-1)}}{Sin\, p\pi} Cos\left\{\frac{1}{2}p\pi + (1-p) Arctg \frac{r}{q}\right\}$ $[p<1]$
(VIII, 540).

5) $\int e^{-px} Sin\, q_0 x . Sin\, q_1 x \dots Sin\, q_a x . \frac{dx}{x^{a+1}} = \frac{1}{2^a 1^{a/1}}(cy-p)^a$ (VIII, 346).

Où toutes les puissances $a, a-2, a-4, \dots$ de y doivent être remplacées par $Arctg \frac{c}{p}$; les autres puissances, $a-1$, $a-3, \dots$ au contraire par $\frac{1}{2} l(p^2+c^2)$. Pour c il faut mettre successivement toutes les sommes possibles des $a+1$ éléments $q_0, q_1 \dots q_a$, en employant le signe $-$ tout aussi bien que le signe $+$. (VIII, 346).

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6) $\int (e^{-px} Sin\, qx - e^{-rx} Sin\, sx) \frac{dx}{x^{t+1}} = \frac{\Gamma(1-t)}{t} \left\{ (p^2+q^2)^{\frac{1}{2}t} Sin\left(t\, Arctg \frac{q}{p}\right) - \right.$

$\left. - (r^2+s^2)^{\frac{1}{2}t} Sin\left(t\, Arctg \frac{s}{r}\right) \right\}$ (IV, 509).

7) $\int (e^{-px} Cos\, qx - e^{-rx} Cos\, sx) \frac{dx}{x^{t+1}} = \frac{\Gamma(1-t)}{t} \left\{ (r^2+s^2)^{\frac{1}{2}t} Cos\left(t\, Arctg \frac{s}{r}\right) - \right.$

$\left. - (p^2+q^2)^{\frac{1}{2}t} Cos\left(t\, Arctg \frac{q}{p}\right) \right\}$ (IV, 509).

F. Alg. rat. fract. à dén. q^2+x^2;
Exponentielle monôme;
Circ. Dir. à un ou deux facteurs.

TABLE 372.

Lim. 0 et ∞.

1) $\int e^{r\, Cos\, sx} Sin\, (r\, Sin\, sx) \frac{x\, dx}{q^2+x^2} = \frac{\pi}{2} (e^{r\, e^{-qs}} - 1)$ (VIII, 498).

2) $\int e^{r\, Cos\, sx} Cos\, (r\, Sin\, sx) \frac{dx}{q^2+x^2} = \frac{\pi}{2q} e^{r\, e^{-qs}}$ (VIII, 497).

3) $\int e^{r\, Cos\, sx} Sin\, (r\, Sin\, sx + px) \frac{x\, dx}{q^2+x^2} = \frac{\pi}{2} e^{-pq + r\, e^{-qs}}$ (VIII, 498).

4) $\int e^{r\, Cos\, sx} Cos\, (r\, Sin\, sx + px) \frac{dx}{q^2+x^2} = \frac{\pi}{2q} e^{-pq + r\, e^{-qs}}$ (VIII, 498).

5) $\int e^{Cos\, sx} Sin \left(\frac{1}{2} a\pi - Sin\, sx\right) \frac{x^{a-1}}{q^2+x^2} dx = \frac{\pi}{2q} q^{a-1} e^{e^{-qs}}$ (IV, 509).

6) $\int e^{r\, Cos\, sx} Sin\, (r\, Sin\, sx) . Sin\, px \frac{dx}{q^2+x^2} = \frac{\pi}{4q} (e^{pq} - e^{-pq}) e^{r\, e^{-qs}} - \frac{\pi}{4q} e^{pq} \sum_0^d \frac{r^n}{1^{n/1}} e^{-nqs} +$

$+ \frac{\pi}{4q} e^{-pq} \sum_0^d \frac{r^n}{1^{n/1}} e^{nqs}$ (VIII, 498).

7) $\int e^{r\, Cos\, sx} Sin\, (r\, Sin\, sx) . Cos\, px \frac{x\, dx}{q^2+x^2} = \frac{\pi}{4} (e^{pq} + e^{-pq}) e^{r\, e^{-qs}} - \frac{\pi}{4} e^{pq} \sum_0^d \frac{r^n}{1^{n/1}} e^{-nqs} -$

$- \frac{\pi}{4} e^{-pq} \sum_0^d \frac{r^n}{1^{n/1}} e^{nqs} \left[\frac{p}{s} \text{ fractionn.}\right], = \frac{\pi}{4} (e^{pq} + e^{-pq}) e^{r\, e^{-qs}} - \frac{\pi}{4} e^{pq} \sum_0^{d-1} \frac{r^n}{1^{n/1}} e^{-nqs} -$

$- \frac{\pi}{4} e^{-pq} \sum_0^d \frac{1^{n/1}}{r^n} e^{nqs} \left[\frac{p}{s} \text{ entier}\right]$ (VIII, 498).

8) $\int e^{r\, Cos\, sx} Cos\, (r\, Sin\, sx) . Sin\, px \frac{x\, dx}{q^2+x^2} = \frac{\pi}{4} (e^{-pq} - e^{pq}) e^{r\, e^{-qs}} + \frac{\pi}{4} e^{pq} \sum_0^d \frac{r^n}{1^{n/1}} e^{-nqs} +$

$$+\frac{\pi}{4}e^{-pq}\sum_0^d\frac{r^n}{1^{n/1}}e^{nqs}\left[\frac{p}{s}\text{ fractionn.}\right],=\frac{\pi}{4}(e^{-pq}-e^{pq})e^{re^{-qs}}+\frac{\pi}{4}e^{pq}\sum_0^{d-1}\frac{r^n}{1^{n/1}}e^{-nqs}+$$

$$+\frac{\pi}{4}e^{-pq}\sum_0^d\frac{r^n}{1^{n/1}}e^{nqs}\left[\frac{p}{s}\text{ entier}\right] \text{ (VIII, 497).}$$

9) $$\int e^{r\,Cos\,sx}\,Cos\,(r\,Sin\,sx)\,.\,Cos\,px\,\frac{dx}{q^2+x^2}=\frac{\pi}{4q}(e^{pq}+e^{-pq})e^{re^{-qs}}-\frac{\pi}{4q}e^{pq}\sum_0^d\frac{r^n}{1^{n/1}}e^{-nqs}+$$

$$+\frac{\pi}{4q}e^{-pq}\sum_0^d\frac{r^n}{1^{n/1}}e^{nqs} \text{ (VIII, 497).}$$

[Dans 5) à 7) on a $d=\mathcal{E}\frac{p}{s}$]

10) $$\int e^{r\,Cos\,sx}\,Sin\,(r\,Sin\,sx)\,.\,Sin^{2a}x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+1}}(e^q-e^{-q})^{2a}(e^{re^{-qs}}-1)\,[s>2a],=$$

$$=\frac{(-1)^a\pi}{2^{2a+1}}\{(e^q-e^{-q})^{2a}(e^{re^{-qs}}-1)-r\}\,[s=2a] \text{ (V, 91).}$$

11) $$\int e^{r\,Cos\,sx}\,Cos\,(r\,Sin\,sx)\,.\,Sin^{2a+1}x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+2}}\Big[e^{-(2a+1)q}\Big\{(1-e^{(2a+1)2q})$$

$$(1-e^{-2q})^{2a+1}-2\sum_0^a(-1)^n\binom{2a+1}{n}e^{2nq}\Big\}+(e^q-e^{-q})^{2a+1}(e^{re^{-qs}}-1)\Big]$$

$$[s>2a+1],=\frac{(-1)^{a-1}\pi}{2^{2a+2}}\Big[e^{-(2a+1)q}\Big\{(1-e^{(2a+1)2q})(1-e^{-2q})^{2a+1}-$$

$$-2\sum_0^a(-1)^n\binom{2a+1}{n}e^{2nq}\Big\}+(e^q-e^{-q})^{2a+1}(e^{re^{-(2a+1)q}}-1)-r\Big]\,[s=2a+1] \text{ (V, 92).}$$

12) $$\int e^{r\,Cos\,sx}\,Cos\,(r\,Sin\,sx)\,.\,Cos^{2a}x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{2a+1}q}\Big\{\binom{2a}{a}+2\sum_1^a\binom{2a}{n+a}e^{-2nq}+$$

$$+(e^q+e^{-q})^{2a}(e^{re^{-qs}}-1)\Big\}\,[s\geqq 2a] \text{ (V, 91).}$$

13) $$\int e^{r\,Cos\,sx}\,Cos\,(r\,Sin\,sx)\,.\,Cos^{2a+1}x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{2a+2}q}\Big\{2\sum_0^a\binom{2a+1}{n+a+1}e^{-(2n+1)q}+$$

$$+(e^q+e^{-q})^{2a+1}(e^{re^{-qs}}-1)\Big\}\,[s\geqq 2a+1] \text{ (V, 91).}$$

14) $$\int e^{r\,Cos\,sx}\,Sin\,(r\,Sin\,sx)\,.\,Tg\,sx\,\frac{dx}{q^2+x^2}=\frac{\pi}{2q}\,\frac{1-e^{-2qs}}{1+e^{-2qs}}(e^{re^{-qs}}-e^r) \text{ (H, 154).}$$

15) $$\int e^{r\,Cos\,sx}\,Sin\,(r\,Sin\,sx)\,.\,Cot\,sx\,\frac{dx}{q^2+x^2}=\frac{\pi}{2q}\,\frac{1+e^{-2qs}}{1-e^{-2qs}}(e^r-e^{re^{-qs}}) \text{ (H, 154).}$$

16) $$\int e^{r\,Cos\,sx}\,Sin\,(r\,Sin\,sx+sx)\,.\,Tg\,sx\,\frac{dx}{q^2+x^2}=\frac{\pi}{2q}\,\frac{1-e^{-2qs}}{1+e^{-2qs}}(e^{re^{-qs}-qs}-e^r) \text{ (H, 155).}$$

F. Alg. rat. fract. à dén. q^2+x^2;
Exponentielle monôme; TABLE 372, suite. Lim. 0 et ∞.
Circ. Dir. à un ou deux facteurs.

17) $\int e^{r\,Cos\,s\,x}\,Sin\,(r\,Sin\,s\,x+s\,x).\,Cot\,s\,x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2q}\,\frac{1+e^{-2qs}}{1-e^{-2qs}}\,(e^r-e^{r\,e^{-qs}-qs})$ (H, 155).

18) $\int e^{r\,Cos\,s\,x}\,Cos\,(r\,Sin\,s\,x+s\,x).\,Tg\,s\,x\,\frac{x\,dx}{q^2+x^2}=-\pi\,\frac{e^{r-2qs}}{1+e^{-2qs}}-\frac{\pi}{2}\,\frac{1-e^{-2qs}}{1+e^{-2qs}}\,e^{r\,e^{-qs}-qs}$ (H, 155).

19) $\int e^{r\,Cos\,s\,x}\,Cos\,(r\,Sin\,s\,x+s\,x).\,Cot\,s\,x\,\frac{x\,dx}{q^2+x^2}=-\pi\,\frac{e^{r-2qs}}{1-e^{-2qs}}+\frac{\pi}{2}\,\frac{1+e^{-2qs}}{1-e^{-2qs}}\,e^{r\,e^{-qs}-qs}$ (H, 155).

F. Alg. rat. fract. à dén. q^2+x^2;
Exponentielle monôme; TABLE 373. Lim. 0 et ∞.
Circ. Dir. à trois ou quatre fact.

1) $\int e^{r\,Cos\,s\,x}\,Sin\,(r\,Sin\,s\,x).\,Sin\,p\,x.\,Sin^{2a+1}\,x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+3}}\,(e^q-e^{-q})^{2a+1}\,(e^{pq}-e^{-pq})$ $(e^{r\,e^{-qs}}-1)$ $[p<s-2a-1]$, $=\frac{(-1)^{a-1}\pi}{2^{2a+3}}\,\{(e^q-e^{-q})^{2a+1}\,(e^{pq}-e^{-pq})$ $(e^{r\,e^{-qs}}-1)-r\}$ $[p=s-2a-1]$ (V, 94).

2) $\int e^{r\,Cos\,s\,x}\,Cos\,(r\,Sin\,s\,x).\,Sin\,p\,x.\,Sin^{2a}\,x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+2}}\,(e^q-e^{-q})^{2a}\,\{2\,e^{-pq}-(e^{pq}-e^{-pq})$ $(e^{r\,e^{-qs}}-1)\}$ $[2p>4a<s]$, $=\frac{(-1)^a\pi}{2^{2a+2}}\Big[(e^q-e^{-q})^{2a}\{2\,e^{-pq}-(e^{pq}-e^{-pq})(e^{r\,e^{-qs}}-1)\}-$ $-2\,e^{(2a-p)q}\sum_0^{d-1}(-1)^n\binom{2a}{n}e^{-2nq}-2\,e^{(p-2a)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{2nq}\Big]$ $[s>2p<4a,\,p$ ent.$]$, $=$ $=\frac{(-1)^a\pi}{2^{2a+2}}\Big[(e^q-e^{-q})^{2a}\,\{2\,e^{-pq}-(e^{pq}-e^{-pq})\,(e^{r\,e^{-qs}}-1)\}-2\,e^{(2a-p)q}\sum_0^{d}(-1)^n\binom{2a}{n}$ $e^{-2nq}-2\,e^{(p-2a)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{2nq}\Big]$ $[s>2p<4a,\,p$ fractionn.$]$, $=\frac{(-1)^a\pi}{2^{2a+2}}\Big[(e^q-e^{-q})^{2a}$ $\{2\,e^{-pq}-(e^{pq}-e^{-pq})(e^{r\,e^{-qs}}-1)\}+r\Big]$ $[2s-4a=2p>s>4a]$, $=\frac{(-1)^a\pi}{2^{2a+2}}\Big[(e^q-e^{-q})^{2a}$ $\{2\,e^{-pq}-(e^{pq}-e^{-pq})\,(e^{r\,e^{-qs}}-1)\}+r-2\,e^{(2a-p)q}\sum_0^{d-1}(-1)^n\binom{2a}{n}e^{-2nq}-2\,e^{(p-2a)q}$ $\sum_0^{d}(-1)^n\binom{2a}{n}e^{2nq}\Big]$ $[2s-4a=2p<s<4a,\,p$ entier$]$, $=\frac{(-1)^a\pi}{2^{2a+2}}\Big[(e^q-e^{-q})^{2a}\{2\,e^{-pq}-$ $-(e^{pq}-e^{-pq})\,(e^{r\,e^{-qs}}-1)\}+r-2\,e^{(2a-p)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{-2nq}-2\,e^{(p-2a)q}\sum_0^{d}(-1)^n$ $\binom{2a}{n}e^{2nq}\Big]$ $[2s-4a=2p<s<4a,\,p$ fractionn.$]$ $\Big[d=\mathcal{E}\Big(a-\frac{1}{2}p\Big)\Big]$ (V, 93).

3) $\int e^{r\,Cos\,s x} Sin(r\,Sin\,s x)\,.\,Cos\,p x\,.\,Sin^{2a} x \frac{x\,dx}{q^2+x^2} = \frac{(-1)^a \pi}{2^{2a+1}} (e^q - e^{-q})^{2a} (e^{pq} + e^{-pq}) (e^{re^{-qs}} - 1)$

$[p < s - 2a], = \frac{(-1)^a \pi}{2^{2a+1}} \{(e^q - e^{-q})^{2a} (e^{pq} + e^{-pq}) (e^{re^{-qs}} - 1) - r\} \; [p = s - 2a]$

(V, 93).

4) $\int e^{r\,Cos\,s x} Sin(r\,Sin\,s x)\,.\,Sin\,p x\,.\,Cos^a x \frac{dx}{q^2+x^2} = \frac{\pi}{2^{2a+2}q} (e^q + e^{-q})^a (e^{pq} - e^{-pq}) (e^{re^{-qs}} - 1)$

$[p \leqq s - a]$ (V, 92).

5) $\int e^{r\,Cos\,s x} Cos(r\,Sin\,s x)\,.\,Cos\,p x\,.\,Sin^{2a+1} x \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}\pi}{2^{2a+3}} (e^q - e^{-q})^{2a+1} \{2e^{-pq} +$

$+ (e^{pq} + e^{-pq})(e^{re^{-qs}} - 1)\} \; [2p > 4a + 2 > s], = \frac{(-1)^{a-1}\pi}{2^{2a+3}} \Big[(e^q - e^{-q})^{2a+1} \{2e^{-pq} +$

$+ (e^{pq} + e^{-pq})(e^{re^{-qs}} - 1)\} - 2e^{(2a+1-p)q} \sum_0^{d-1} (-1)^n \binom{2a+1}{n} e^{-2nq} - 2e^{(p-2a-1)q}$

$\sum_0^{d} (-1)^n \binom{2a+1}{n} e^{2nq}\Big] \; [s > 2p < 4a + 2,\ p$ entier$], = \frac{(-1)^{a-1}\pi}{2^{2a+3}} \Big[(e^q - e^{-q})^{2a+1}$

$\{2e^{-pq} + (e^{pq} + e^{-pq})(e^{re^{-qs}} - 1)\} - 2e^{(2a+1-p)q} \sum_0^{d} (-1)^n \binom{2a+1}{n} e^{-2nq} - 2e^{(p-2a-1)q}$

$\sum_0^{d} (-1)^n \binom{2a+1}{n} e^{2nq}\Big] [s > 2p < 4a + 2,\ p$ fractionn.$], = \frac{(-1)^{a-1}\pi}{2^{2a+3}} \Big[(e^q - e^{-q})^{2a+1}$

$\{2e^{-pq} + (e^{pq} + e^{-pq})(e^{re^{-qs}} - 1)\} - r\Big] [2s - 4a - 2 = 2p > s > 4a + 2], = \frac{(-1)^{a-1}\pi}{2^{2a+3}}$

$\Big[(e^q - e^{-q})^{2a+1} \{2e^{-pq} + (e^{pq} + e^{-pq})(e^{re^{-qs}} - 1)\} - r - 2e^{(2a+1-p)q} \sum_0^{d-1} (-1)^n$

$\binom{2a+1}{n} e^{-2nq} - 2e^{(p-2a-1)q} \sum_0^{d} (-1)^n \binom{2a+1}{n} e^{2nq}\Big] [2s - 4a - 2 = 2p < s < 4a + 2,$

p entier$], = \frac{(-1)^{a-1}\pi}{2^{2a+3}} \Big[(e^q - e^{-q})^{2a+1} \{2e^{-pq} + (e^{pq} + e^{-pq})(e^{re^{-qs}} - 1)\} - r -$

$- 2e^{(2a+1-p)q} \sum_0^{d} (-1)^n \binom{2a+1}{n} e^{-2nq} - 2e^{(p-2a-1)q} \sum_0^{d} (-1)^n \binom{2a+1}{n} e^{2nq}\Big] [2s - 4a - 2 =$

$= 2p < s < 4a + 2,\ p$ fractionn.$] \Big[d = \mathcal{E}\frac{1}{2}(2a + 1 - p)\Big]$ (V, 94).

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6) $\int e^{r\,Cos\,s\,x}\,Cos\,(r\,Sin\,s\,x)\,.\,Cos\,p\,x\,.\,Cos^a x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+2}q}(e^q+e^{-q})^a\left\{2e^{-pq}+(e^{pq}+e^{-pq})\right.$

$\left.(e^{re^{-qs}}-1)\right\}\;[2p\geqq 2a\leqq s],=\frac{\pi}{2^{a+2}q}\left[2\left\{(e^q+e^{-q})^a e^{-pq}-e^{(a-p)q}\sum_0^d\binom{a}{n}\right.\right.$

$\left.\left.e^{-2nq}+e^{(p-a)q}\sum_0^d\binom{a}{n}e^{2nq}\right\}+(e^q+e^{-q})^a(e^{pq}+e^{-pq})(e^{re^{-qs}}-1)\right]\;[2a>2p\leqq s]$

$\left[d=\mathcal{E}\,\frac{1}{2}(a-p)\right]$ (V, 92).

7) $\int e^{t\,Cos\,2\,s\,x}\,Sin^{r-1}s\,x\,.\,Cos^{p-1}s\,x\,.\,Sin\left\{\frac{1}{2}r\pi-(p+r+2)\,s\,x-t\,Sin\,2\,s\,x\right\}\frac{dx}{q^2+x^2}=$

$=\frac{-\pi e^{-4qs}}{2^{p+r-1}q}(1+e^{-2qs})^{p-1}(1-e^{-2qs})^{r-1}e^{te^{-2qs}}$ (H, 167).

8) $\int e^{t\,Cos\,2\,s\,x}\,Sin^{r-1}s\,x\,.\,Cos^{p-1}s\,x\,.\,Cos\left\{\frac{1}{2}r\pi-(p+r+2)\,s\,x-t\,Sin\,2\,s\,x\right\}\frac{x\,dx}{q^2+x^2}=$

$=\frac{\pi e^{-4qs}}{2^{p+r-1}}(1+e^{-2qs})^{p-1}(1-e^{-2qs})^{r-1}e^{te^{-2qs}}$ (H, 167).

9) $\int e^{t\,Cos\,2\,s\,x}\,Cos^r s\,x\,.\,Sin\,(s\,r\,x+t\,Sin\,2\,s\,x)\,.\,Tg\,2\,s\,x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{r+1}q}\,\frac{1-e^{-4qs}}{1+e^{-4qs}}$

$\left\{(1+e^{-2qs})^r e^{te^{-2qs}}-2^r e^t\right\}$ (H, 158).

10) $\int e^{t\,Cos\,2\,s\,x}\,Cos^r s\,x\,.\,Sin\,(s\,r\,x+t\,Sin\,2\,s\,x)\,.\,Cot\,2\,s\,x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{r+1}q}\,\frac{1+e^{-4qs}}{1-e^{-4qs}}$

$\left\{2^r e^t-(1+e^{-2qs})^r e^{te^{-2qs}}\right\}$ (H, 158).

11) $\int e^{t\,Cos\,2\,s\,x}\,Sin^{r-1}s\,x\,.\,Cos^{p-1}s\,x\,.\,Sin\left\{\frac{1}{2}r\pi-(p+r)\,s\,x-t\,Sin\,2\,s\,x\right\}\frac{dx}{q^2+x^2}=$

$=\frac{\pi e^{-2qs}}{2^{p+r-1}q}(1+e^{-2qs})^{p-1}(1-e^{-2qs})^{r-1}e^{te^{-2qs}}$ (H, 160).

12) $\int e^{t\,Cos\,2\,s\,x}\,Sin^{r-1}s\,x\,.\,Cos^{p-1}s\,x\,.\,Cos\left\{\frac{1}{2}r\pi-(p+r)\,s\,x-t\,Sin\,2\,s\,x\right\}\frac{x\,dx}{q^2+x^2}=$

$=\frac{\pi e^{-2qs}}{2^{p+r-1}}(1+e^{-2qs})^{p-1}(1-e^{-2qs})^{r-1}e^{te^{-2qs}}$ (H, 160).

13) $\int e^{t\,Cos\,2\,s\,x}\,Cos^r s\,x\,.\,Sin\left\{(r+2)\,s\,x+t\,Sin\,2\,s\,x\right\}.\,Tg\,2\,s\,x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{r+1}q}\,\frac{1-e^{-4qs}}{1+e^{-4qs}}$

$\left\{(1+e^{-2qs})^r e^{te^{-2qs}-2qs}-2^r e^t\right\}$ (H, 164).

14) $\int e^{t\,Cos\,2\,s\,x}\,Cos^r s\,x\,.\,Sin\left\{(r+2)\,s\,x+t\,Sin\,2\,s\,x\right\}.\,Cot\,2\,s\,x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{r+1}q}\,\frac{1+e^{-4qs}}{1-e^{-4qs}}$

$\left\{2^r e^t-(1+e^{-2qs})^r e^{te^{-2qs}-2qs}\right\}$ (H. 164).

15) $$\int e^{t\,Cos\,2sx}\,Cos^r sx\,.\,Cos\left\{(r+2)sx+t\,Sin\,2sx\right\}.\,Tg\,2sx\,\frac{x\,dx}{q^2+x^2}=-\frac{\pi}{1+e^{-4qs}}\left\{e^{t-4qs}+2^{-r-1}(1-e^{-2qs})(1+e^{-2qs})^{r+1}e^{t e^{-2qs}-2qs}\right\}$$ (H, 164).

16) $$\int e^{t\,Cos\,2sx}\,Cos^r sx\,.\,Cos\left\{(r+2)sx+t\,Sin\,2sx\right\}.\,Cot\,2sx\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{1-e^{-4qs}}\left\{-e^{t-4qs}+2^{-r-1}(1+e^{-4qs})(1+e^{-2qs})^{r}e^{t e^{-2qs}-2qs}\right\}$$ (H, 164).

17) $$\int e^{t\,Cos\,2sx}\,Sin^r sx\,.\,Cos^p sx\,.\,Sin\left\{\frac{1}{2}r\pi-(p+r)sx-t\,Sin\,2sx\right\}.\,Tg\,2sx\,\frac{dx}{q^2+x^2}=$$
$$=\frac{-\pi}{2^{p+r+1}q}\,\frac{1}{1+e^{-4qs}}(1+e^{-2qs})^{p+1}(1-e^{-2qs})^{r+1}e^{t e^{-2qs}}$$ (H, 160).

18) $$\int e^{t\,Cos\,2sx}\,Sin^r sx\,.\,Cos^p sx\,.\,Sin\left\{\frac{1}{2}r\pi-(p+r)sx-t\,Sin\,2sx\right\}.\,Cot\,2sx\,\frac{dx}{q^2+x^2}=$$
$$=\frac{\pi}{2^{p+r+1}q}(1+e^{-4qs})(1+e^{-2qs})^{p-1}(1-e^{-2qs})^{r-1}e^{t e^{-2qs}}$$ (H, 160).

19) $$\int e^{t\,Cos\,2sx}\,Sin^r sx\,.\,Cos^p sx\,.\,Cos\left\{\frac{1}{2}r\pi-(p+r)sx-t\,Sin\,2sx\right\}.\,Tg\,2sx\,\frac{x\,dx}{q^2+x^2}=$$
$$=\frac{-\pi}{2^{p+r+1}}\,\frac{1}{1+e^{-4qs}}(1+e^{-2qs})^{p+1}(1-e^{-2qs})^{r+1}e^{t e^{-2qs}}$$ (H, 160).

20) $$\int e^{t\,Cos\,2sx}\,Sin^r sx\,.\,Cos^p sx\,.\,Cos\left\{\frac{1}{2}r\pi-(p+r)sx-t\,Sin\,2sx\right\}.\,Cot\,2sx\,\frac{x\,dx}{q^2+x^2}=$$
$$=\frac{\pi}{2^{p+r+1}}(1+e^{-4qs})(1+e^{-2qs})^{p-1}(1-e^{-2qs})^{r-1}e^{t e^{-2qs}}$$ (H, 160).

21) $$\int e^{t\,Cos\,2sx}\,Sin^r sx\,.\,Cos^p sx\,.\,Sin\left\{\frac{1}{2}r\pi-(p+r+2)sx-t\,Sin\,2sx\right\}.\,Tg\,2sx\,\frac{dx}{q^2+x^2}=$$
$$=\frac{\pi}{2^{p+r+1}q}\,\frac{1}{e^{2qs}+e^{-2qs}}(1+e^{-2qs})^{p+1}(1-e^{-2qs})^{r+1}e^{t e^{-2qs}}$$ (H, 167).

22) $$\int e^{t\,Cos\,2sx}\,Sin^r sx\,.\,Cos^p sx\,.\,Sin\left\{\frac{1}{2}r\pi-(p+r+2)sx-t\,Sin\,2sx\right\}.\,Cot\,2sx\,\frac{dx}{q^2+x^2}=$$
$$=\frac{-\pi}{2^{p+r+1}q}(1+e^{-4qs})(1+e^{-2qs})^{p-1}(1-e^{-2qs})^{r-1}e^{t e^{-2qs}-2qs}$$ (H, 167).

23) $$\int e^{t\,Cos\,2sx}\,Sin^r sx\,.\,Cos^p sx\,.\,Cos\left\{\frac{1}{2}r\pi-(p+r+2)sx-t\,Sin\,2sx\right\}.\,Tg\,2sx\,\frac{x\,dx}{q^2+x^2}=$$
$$=\frac{-\pi}{2^{p+r+1}}\,\frac{1}{e^{2qs}+e^{-2qs}}(1+e^{-2qs})^{p+1}(1-e^{-2qs})^{r+1}e^{t e^{-2qs}}$$ (H, 167).

F. Alg. rat. fract. à dén. q^2+x^2;
Exponentielle monôme; TABLE 373, suite. Lim. 0 et ∞.
Circ. Dir. à trois ou quatre fact.

24) $\int e^{t\,Cos\,2sx}\,Sin^r sx\,.\,Cos^p sx\,.\,Cos\left\{\frac{1}{2}r\pi-(p+r+2)sx-t\,Sin\,2sx\right\}.\,Cot\,2sx\,\frac{x\,dx}{q^2+x^2}=$

$=\frac{\pi}{2^{p+r+1}}(1+e^{-4qs})(1+e^{-2qs})^{p-1}(1-e^{-2qs})^{r-1}e^{te^{-2qs}-2qs}$ (H, 167).

F. Alg. rat. fract. à dén. q^2+x^2;
Exponent. à expos. polynôme; TABLE 374. Lim. 0 et ∞.
Circul. Directe.

1) $\int e^{r\,Cos\,sx+r_1\,Cos\,s_1x+\dots}\,Sin\{r\,Sin\,sx+r_1\,Sin\,s_1x+\dots\}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}\{e^{re^{-qs}+r_1e^{-qs_1}+\dots}-1\}$ (H, 64).

2) $\int e^{r\,Cos\,sx+r_1\,Cos\,s_1x+\dots}\,Cos\{r\,Sin\,sx+r_1\,Sin\,s_1x+\dots\}\frac{dx}{q^2+x^2}=\frac{\pi}{2q}e^{re^{-qs}+r_1e^{-qs_1}+\dots}$ (H, 64).

3) $\int e^{r\,Cos\,sx+r_1\,Cos\,s_1x+\dots}\,Sin\{r\,Sin\,sx+r_1\,Sin\,s_1x+\dots+px\}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}e^{re^{-qs}+r_1e^{-qs_1}+\dots-qp}$ (H, 68).

4) $\int e^{r\,Cos\,sx+r_1\,Cos\,s_1x+\dots}\,Cos\{r\,Sin\,sx+r_1\,Sin\,s_1x+\dots+px\}\frac{dx}{q^2+x^2}=\frac{\pi}{2q}e^{re^{-qs}+r_1e^{-qs_1}+\dots-qp}$ (H, 68).

5) $\int e^{t\,Cos\,ux+\dots}\,Sin^s rx\dots Cos^n px\dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots)x-t\,Sin\,ux-\dots\right\}$

$\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{1+n+\dots+s+\dots}}\{(1+e^{-2pq})^n\dots(1-e^{-2qr})^s\dots e^{te^{-qr}+\dots}-e^{t+\dots}\}$ (H, 72).

6) $\int e^{t\,Cos\,ux+\dots}\,Sin^s rx\dots Cos^n px\dots Cos\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots)x-t\,Sin\,ux-\dots\right\}$

$\frac{dx}{q^2+x^2}=\frac{\pi}{2^{1+n+\dots+s+\dots}q}(1+e^{-2pq})^n\dots(1-e^{-2qr})^s\dots e^{te^{-qr}+\dots}$ (H, 72).

7) $\int e^{t\,Cos\,ux+\dots}\,Sin^s rx\dots Cos^n px\dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots+w)x-t\,Sin\,ux-\dots\right\}$

$\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{1+n+\dots+s+\dots}}(1+e^{-2pq})^n\dots(1-e^{-2qr})^s\dots e^{te^{-qr}+\dots-qw}$ (H, 77).

8) $\int e^{t\,Cos\,ux+\dots}\,Sin^s rx\dots Cos^n px\dots Cos\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots+w)x-t\,Sin\,ux-\dots\right\}$

$\frac{dx}{q^2+x^2}=\frac{\pi}{2^{1+n+\dots+s+\dots}q}(1+e^{-2pq})^n\dots(1-e^{-2qr})^s\dots e^{te^{-qr}+\dots-qw}$ (H, 77).

F. Alg. rat. fract. à dén. q^2+x^2;
Exponentielle binôme; **TABLE 375.** Lim. 0 et ∞.
Circul. Directe à un facteur.

1) $\int (e^{r\,Sin\,sx} - e^{-r\,Sin\,sx})\, Sin\,(r\,Cos\,sx)\, \frac{x\,dx}{q^2+x^2} = \pi\,\{1 - Cos\,(r\,e^{-qs})\}$ (VIII, 500).

2) $\int (e^{r\,Sin\,sx} + e^{-r\,Sin\,sx})\, Sin\,(r\,Cos\,sx)\, \frac{dx}{q^2+x^2} = \frac{\pi}{q}\, Sin(r e^{-qs})$ (VIII, 499).

3) $\int (e^{r\,Sin\,sx} - e^{-r\,Sin\,sx})\, Cos\,(r\,Cos\,sx)\, \frac{x\,dx}{q^2+x^2} = \pi\,\{Sin(r e^{-qs}) - r e^{-qs}\}$ (VIII, 500).

4) $\int (e^{r\,Sin\,sx} + e^{-r\,Sin\,sx})\, Cos\,(r\,Cos\,sx)\, \frac{dx}{q^2+x^2} = \frac{\pi}{q}\, Cos(r e^{-qs})$ (VIII, 499).

5) $\int \{1 - e^{r\,Cos\,sx}\, Cos\,(r\,Sin\,sx)\}\, Tg\,sx\, \frac{x\,dx}{q^2+x^2} = \frac{\pi\, e^{r-2qs}}{1+e^{-2qs}} + \frac{\pi}{2}\, \frac{1-e^{-2qs}}{1+e^{-2qs}}\, e^{re^{-qs}}$ (H, 154).

6) $\int \{1 - e^{r\,Cos\,sx}\, Cos\,(r\,Sin\,sx)\}\, Cot\,sx\, \frac{x\,dx}{q^2+x^2} = \frac{\pi\, e^{r-2qs}}{1-e^{-2qs}} - \frac{\pi}{2}\, \frac{1+e^{-2qs}}{1-e^{-2qs}}\, e^{re^{-qs}}$ (H, 154).

7) $\int \{1 - Cos^r sx . e^{t\,Cos\,2sx}\, Cos\,(srx + t\,Sin\,2sx)\}\, Tg\,2sx\, \frac{x\,dx}{q^2+x^2} = \frac{\pi}{1+e^{-4qs}}\, e^{t-4qs} +$

$+ \frac{\pi}{2^{r+1}}\, \frac{1-e^{-2qs}}{1+e^{-4qs}}\, (1+e^{-2qs})^{r+1}\, e^{te^{-2qs}}$ (H, 158).

8) $\int \{1 - Cos^r sx . e^{t\,Cos\,2sx}\, Cos\,(srx + t\,Sin\,2sx)\}\, Cot\,2sx\, \frac{x\,dx}{q^2+x^2} = \frac{\pi}{1-e^{-4qs}}\, e^{t-4qs} -$

$- \frac{\pi}{2^{r+1}}\, \frac{1+e^{-4qs}}{1-e^{-2qs}}\, (1+e^{-2qs})^{r-1}\, e^{te^{-2qs}}$ (H, 158).

F. Alg. rat. fract. à dén. q^2+x^2;
Exponentielle binôme; **TABLE 376.** Lim. 0 et ∞.
Circ. Dir. à deux facteurs.

1) $\int (e^{r\,Sin\,sx} + e^{-r\,Sin\,sx})\, Sin\,(r\,Cos\,sx) . Sin\,px\, \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2}\, (e^{-pq} - e^{pq})\, Sin(r e^{-qs}) +$

$+ \frac{\pi}{2} e^{pq} \sum_0^d \frac{r^{2n+1}}{1^{2n+1/1}} (-1)^n e^{-(2n+1)qs} + \frac{\pi}{2} e^{-pq} \sum_0^d \frac{r^{2n+1}}{1^{2n+1/1}} (-1)^n e^{(2n+1)qs}$

$[p = (2d+1)s + p',\ p' < 2s]$, $= \frac{\pi}{2}\, (e^{-pq} - e^{pq})\, Sin(r e^{-qs}) +$

$+ \frac{\pi}{2} e^{pq} \sum_0^{d-1} \frac{r^{2n+1}}{1^{2n+1/1}} (-1)^n e^{-(2n+1)qs} + \frac{\pi}{2} e^{-pq} \sum_0^d \frac{r^{2n+1}}{1^{2n+1/1}} (-1)^n e^{(2n+1)qs}$

$[p = (2d+1)s]$ (VIII, 500).

2) $\int (e^{r \operatorname{Sin} sx} - e^{-r \operatorname{Sin} sx}) \operatorname{Sin}(r \operatorname{Cos} sx) . \operatorname{Sin} px \frac{dx}{q^2+x^2} = \frac{\pi}{2q} (e^{-pq} - e^{pq}) \operatorname{Cos} (re^{-qs}) +$
$+ \frac{\pi}{2q} e^{pq} \sum_0^d \frac{r^{2n}}{1^{2n/1}} (-1)^n e^{-2nqs} - \frac{\pi}{2q} e^{-pq} \sum_0^d \frac{r^{2n}}{1^{2n/1}} (-1)^n e^{2nqs}$
$[p = 2ds + p', 0 \leqq p' < 2s]$ (VIII, 500).

3) $\int (e^{r \operatorname{Sin} sx} + e^{-r \operatorname{Sin} sx}) \operatorname{Sin}(r \operatorname{Cos} sx) . \operatorname{Cos} px \frac{dx}{q^2+x^2} = \frac{\pi}{2q} (e^{pq} + e^{-pq}) \operatorname{Sin} (re^{-qs}) -$
$- \frac{\pi}{2q} e^{pq} \sum_0^d \frac{r^{2n+1}}{1^{2n+1/1}} (-1)^n e^{-(2n+1)qs} + \frac{\pi}{2q} e^{-pq} \sum_0^d \frac{r^{2n+1}}{1^{2n+1/1}} (-1)^n e^{(2n+1)qs}$
$[p = (2d+1)s + p', 0 \leqq p < 2s]$ (VIII, 500).

4) $\int (e^{r \operatorname{Sin} sx} - e^{r \operatorname{Sin} sx}) \operatorname{Sin}(r \operatorname{Cos} sx) . \operatorname{Cos} px \frac{x\,dx}{q^2+x^2} = -\frac{\pi}{2} (e^{pq} + e^{-pq}) \operatorname{Cos} (re^{-qs}) +$
$+ \frac{\pi}{2} e^{pq} \sum_0^d \frac{r^{2n}}{1^{2n/1}} (-1)^n e^{-2nqs} + \frac{\pi}{2} e^{-pq} \sum_0^d \frac{r^{2n}}{1^{2n/1}} (-1)^n e^{2nqs}$ $[p = 2ds + p', p' < 2s]$, $=$
$= -\frac{\pi}{2} (e^{pq} + e^{-pq}) \operatorname{Cos} (re^{-qs}) + \frac{\pi}{2} e^{pq} \sum_0^{d-1} \frac{r^{2n}}{1^{2n/1}} (-1)^n e^{-2nqs} + \frac{\pi}{2} e^{-pq} \sum_0^d \frac{r^{2n}}{1^{2n/1}} (-1)^n$
e^{2nqs} $[p = 2ds]$ (VIII, 501).

5) $\int (e^{r \operatorname{Sin} sx} - e^{-r \operatorname{Sin} sx}) \operatorname{Cos}(r \operatorname{Cos} sx) . \operatorname{Sin} px \frac{dx}{q^2+x^2} = \frac{\pi}{2q} (e^{pq} - e^{-pq}) \operatorname{Sin} (re^{-qs}) -$
$- \frac{\pi}{2q} e^{pq} \sum_0^d \frac{r^{2n+1}}{1^{2n+1/1}} (-1)^n e^{-(2n+1)qs} + \frac{\pi}{2q} e^{-pq} \sum_0^d \frac{r^{2n+1}}{1^{2n+1/1}} (-1)^n e^{(2n-1)qs}$
$[p = (2d+1)s + p', 0 \leqq p' < 2s]$ (VIII, 500).

6) $\int (e^{r \operatorname{Sin} sx} + e^{-r \operatorname{Sin} sx}) \operatorname{Cos}(r \operatorname{Cos} sx) . \operatorname{Sin} px \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2} (e^{-pq} - e^{pq}) \operatorname{Cos} (re^{-qs}) +$
$+ \frac{\pi}{2} e^{pq} \sum_0^d \frac{r^{2n}}{1^{2n/1}} (-1)^n e^{-2nqs} + \frac{\pi}{2} e^{-pq} \sum_0^d \frac{r^{2n}}{1^{2n/1}} (-1)^n e^{2nqs}$ $[p = 2ds + p', p' < 2s]$, $=$
$= \frac{\pi}{2} (e^{-pq} - e^{pq}) \operatorname{Cos} (re^{-qs}) + \frac{\pi}{2} e^{pq} \sum_0^{d-1} \frac{r^{2n}}{1^{2n/1}} (-1)^n e^{-2nqs} + \frac{\pi}{2} e^{-pq} \sum_0^d \frac{r^{2n}}{1^{2n/1}} (-1)$
e^{2nqs} $[p = 2ds]$ (VIII, 500).

7) $\int (e^{r \operatorname{Sin} sx} + e^{-r \operatorname{Sin} sx}) \operatorname{Cos}(r \operatorname{Cos} sx) . \operatorname{Cos} px \frac{dx}{q^2+x^2} = \frac{\pi}{2q} (e^{pq} + e^{-pq}) \operatorname{Cos} (re^{-qs}) -$
$- \frac{\pi}{2q} e^{pq} \sum_0^d \frac{r^{2n}}{1^{2n/1}} (-1)^n e^{-2nqs} + \frac{\pi}{2q} e^{-pq} \sum_0^d \frac{r^{2n}}{1^{2n/1}} (-1)^n e^{2nqs}$
$[p = 2ds + p', 0 \leqq p' < 2s]$ (VIII, 499).

8) $$\int (e^{r\,Sin\,s\,x}-e^{-r\,Sin\,s\,x})\,Cos(r\,Cos\,s\,x)\,.\,Cos\,p\,x\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}(e^{pq}+e^{-pq})\,Sin\,(r\,e^{-qs})-$$
$$-\frac{\pi}{2}e^{pq}\sum_0^d\frac{r^{2n+1}}{1^{2n+1/1}}(-1)^n e^{-(2n+1)qs}-\frac{\pi}{2}e^{-pq}\sum_0^d\frac{r^{2n+1}}{1^{2n+1/1}}(-1)^n e^{(2n+1)qs}$$
$$[p=(2d+1)s+p',\ p'<2s],=\frac{\pi}{2}(e^{pq}+e^{-pq})\,Sin(r\,e^{-qs})-\frac{\pi}{2}e^{pq}$$
$$\sum_0^{d-1}\frac{r^{2n+1}}{1^{2n+1/1}}(-1)^n e^{-(2n+1)qs}-\frac{\pi}{2}e^{-pq}\sum_0^d\frac{r^{2n+1}}{1^{2n+1/1}}(-1)^n e^{(2n+1)qs}$$
$[p=(2d+1)s]$ (VIII, 501).

9) $$\int (e^{r\,Sin\,s\,x}+e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x)\,.\,Sin^{2a+1}x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+1}}(e^q-e^{-q})^{2a+1}\,Sin\,(r\,e^{-qs})$$
$[s>2a+1]$, $=\frac{(-1)^{a-1}\pi}{2^{2a+1}}[(e^q-e^{-q})^{2a+1}\,Sin\,(r\,e^{-qs})-r]$ $[s=2a+1]$ (V, 99).

10) $$\int (e^{r\,Sin\,s\,x}-e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x)\,.\,Sin^{2a}x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a}}(e^q-e^{-q})^{2a}[Cos(r\,e^{-qs})-1]$$
$[s>2a]$, $=\frac{(-1)^{a-1}\pi}{2^{2a}}(e^q-e^{-q})^{2a}\left(Cos\,(r\,e^{-qs})-1+\frac{1}{2}r^2e^{-2qs}\right)$ $[s=2a]$ (V, 98).

11) $$\int (e^{r\,Sin\,s\,x}+e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x)\,.\,Cos^a x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^a q}(e^q+e^{-q})^a\,Sin\,(r\,e^{-qs})\ [s\geqq a]$$
(V, 98).

12) $$\int (e^{r\,Sin\,s\,x}-e^{-r\,Sin\,s\,x})\,Cos\,(r\,Cos\,s\,x)\,.\,Sin^{2a}x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a}}(e^q-e^{-q})^{2a}\,Sin\,(r\,e^{-qs})$$
$[s>2a]$, $=\frac{(-1)^a\pi}{2^{2a}}\{(e^q-e^{-q})^{2a}\,Sin\,(r\,e^{-qs})-r\}$ $[s=2a]$ (V, 98).

13) $$\int (e^{r\,Sin\,s\,x}+e^{-r\,Sin\,s\,x})\,Cos\,(r\,Cos\,s\,x)\,.\,Sin^{2a+1}x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+1}}\Big[e^{-(2a+1)q}\Big\{(1-e^{(2a+1)2q})$$
$$(1-e^{-2q})^{2a+1}-2\sum_0^a(-1)^n\binom{2a+1}{n}e^{2nq}\Big\}+(e^q-e^{-q})^{2a+1}[Cos\,(r\,e^{-qs})-1]\Big]$$
$$[s>2a+1],=\frac{(-1)^{a-1}\pi}{2^{2a+1}}\Big[e^{-(2a-1)q}\Big\{(1-e^{(2a+1)2q})\,(1-e^{-2q})^{2a+1}-$$
$$-2\sum_0^a(-1)^n\binom{2a+1}{n}e^{2nq}\Big\}+(e^q-e^{-q})^{2a+1}\left(Cos\,(r\,e^{-qs})-1+\frac{1}{2}r^2e^{2qs}\right)\Big]$$
$[s=2a+1]$ (V, 99).

14) $$\int (e^{r\,Sin\,s\,x}+e^{-r\,Sin\,s\,x})\,Cos\,(r\,Cos\,s\,x)\,.\,Cos^{2a}x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{2a}q}\left[\binom{2a}{a}+2\sum_1^a\binom{2a}{n+a}e^{-2nq}+\right.$$
$$\left.+(e^q+e^{-q})^{2a}[Cos(r\,e^{-qs})-1]\right]\ [s\geqq 2a]\ \text{(V, 98).}$$

15) $$\int (e^{r\,Sin\,s\,x}+e^{-r\,Sin\,s\,x})\,Cos\,(r\,Cos\,s\,x)\,.\,Cos^{2a+1}x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{2a+1}q}\left[2\sum_0^a\binom{2a+1}{n+a+1}e^{-(2n+1)q}+\right.$$
$$\left.+(e^q+e^{-q})^{2a+1}[Cos(r\,e^{-qs})-1]\right]\ [s\geqq 2a+1]\ \text{(V, 98).}$$

1) $$\int (e^{r\,Sin\,s\,x}+e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x)\,.\,Sin\,p\,x\,.\,Sin^{2a}x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+1}}(e^q-e^{-q})^{2a}$$
$$(e^{pq}-e^{-pq})Sin(r\,e^{-qs})\ [2p>4a<s \text{ ou } 4a>2p<s],=\frac{(-1)^{a-1}\pi}{2^{2a+1}}\{(e^q-e^{-q})^{2a}$$
$$(e^{pq}-e^{-pq})\,Sin\,(r\,e^{-qs})-r\}\ [p=s-2a]\ \text{(V, 100).}$$

2) $$\int (e^{r\,Sin\,s\,x}-e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x)\,.\,Sin\,p\,x\,.\,Sin^{2a+1}x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+2}}(e^q-e^{-q})^{2a+1}$$
$$(e^{pq}-e^{-pq})\{Cos(r\,e^{-qs})-1\}\ [p<s-2a-1],=\frac{(-1)^a\pi}{2^{2a+2}}(e^q-e^{-q})^{2a+1}(e^{pq}-e^{-pq})$$
$$\left(Cos(r\,e^{-qs})-1+\frac{1}{2}r^2e^{-2sq}\right)[p=s-2a-1]\ \text{(V, 103).}$$

3) $$\int (e^{r\,Sin\,s\,x}-e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x)\,.\,Sin\,p\,x\,.\,Cos^a x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+1}q}(e^q+e^{-q})^a(e^{pq}-e^{-pq})$$
$$[1-Cos\,(r\,e^{-qs})]\ [p\leqq s-a]\ \text{(V, 100).}$$

4) $$\int (e^{r\,Sin\,s\,x}-e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x)\,.\,Cos\,p\,x\,.\,Sin^{2a}x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+1}}(e^q-e^{-q})^{2a}(e^{pq}+e^{-pq})$$
$$[Cos\,(r\,e^{-qs})-1][p<s-2a],=\frac{(-1)^a\pi}{2^{2a+1}}\left[(e^q-e^{-q})^{2a}(e^{pq}+e^{-pq})\left(Cos\,(r\,e^{-qs})-1+\right.\right.$$
$$\left.\left.+\frac{1}{2}r^2e^{-2sq}\right)\right][p=s-2a]\ \text{(V, 101).}$$

5) $\int (e^{r \sin sx}+e^{-r \sin sx}) \sin(r \cos sx) . \cos px . \sin^{2a+1} x \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}\pi}{2^{2a+2}} (e^q-e^{-q})^{2a+1}$ $(e^{pq}+e^{-pq}) \sin(re^{-qs})$ $[s>4a+2<2p$ ou $4a+2>2p<s]$, $= \frac{(-1)^a\pi}{2^{2a+2}}$ $\{(e^q-e^{-q})^{2a+1}(e^{pq}+e^{-pq})\sin(re^{-qs})-r\}$ $[p=s-2a-1$ et $2p>s>4a+2$ ou $2p<s<4a+2]$ (V, 102).

6) $\int (e^{r \sin sx}+e^{-r \sin sx}) \sin(r \cos sx) . \cos px . \cos^a x \frac{dx}{q^2+x^2} = \frac{\pi}{2^{a+1}q} (e^q+e^{-q})^a (e^{pq}+e^{-pq})$ $\sin(re^{-qs})$ $[2p \geqq 2a \leqq s$ ou $2a>2p \leqq s]$ (V, 99).

7) $\int (e^{r \sin sx}+e^{-r \sin sx}) \cos(r \cos sx) . \sin px . \sin^{2a} x \frac{x\,dx}{q^2+x^2} = \frac{(-1)^a\pi}{2^{2a+1}} (e^q-e^{-q})^{2a} \{2e^{-pq}-$ $-(e^{pq}-e^{-pq})[\cos(re^{-qs})-1]\}$ $[2p>4a<s]$, $= \frac{(-1)^a\pi}{2^{2a+1}} \Big[(e^q-e^{-q})^{2a}\{2e^{-pq}-$ $-(e^{pq}-e^{-pq})[\cos(re^{-qs})-1]\}-2e^{(2a-p)q}\sum_0^{d-1}(-1)^n\binom{2a}{n}e^{-2nq}-2e^{(p-2a)q}\sum_0^{d}(-1)^n$ $\binom{2a}{n}e^{2nq}\Big]$ $[s>2p<4a, p$ entier$]$, $= \frac{(-1)^a\pi}{2^{2a+1}}\Big[(e^q-e^{-q})^{2a}\{2e^{-pq}-(e^{pq}-e^{-pq})$ $[\cos(re^{-qs})-1]\}-2e^{(2a-p)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{-2nq}-2e^{(p-2a)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{2nq}\Big]$ $[s>2p<4a, p$ fractionn.$]$, $= \frac{(-1)^a\pi}{2^{2a+1}}(e^q-e^{-q})^{2a}\Big[2e^{-pq}-(e^{pq}-e^{-pq})\Big(\cos(re^{-qs})-1+$ $+\frac{1}{2}r^2e^{-2qs}\Big)\Big]$ $[2s-4a=2p>s>4a]$, $= \frac{(-1)^a\pi}{2^{2a+1}}\Big[(e^q-e^{-q})^{2a}\Big\{2e^{-pq}-(e^{pq}-e^{-pq})$ $\Big(\cos(re^{-qs})-1+\frac{1}{2}r^2e^{-2qs}\Big)\Big\}-2e^{(2a-p)q}\sum_0^{d-1}(-1)^n\binom{2a}{n}e^{-2nq}-2e^{(p-2a)q}\sum_0^{d}(-1)^n$ $\binom{2a}{n}e^{2nq}\Big]$ $[2s-4a=2p<s<4a, p$ entier$]$, $= \frac{(-1)^a\pi}{2^{2a+1}}\Big[(e^q-e^{-q})^{2a}\Big\{2e^{-pq}-$ $-(e^{pq}-e^{-pq})\Big(\cos(re^{-qs})-1+\frac{1}{2}r^2e^{-2qs}\Big)\Big\}-2e^{(2a-p)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{-2nq}-$ $-2e^{(p-2a)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{2nq}\Big]$ $[2s-4a=2p<s<4a, p$ fractionn.$]$ $\Big[d=\mathcal{E}\Big(a-\frac{1}{2}p\Big)\Big]$ (V, 100).

8) $\int (e^{r \sin sx}-e^{-r \sin sx}) \cos(r \cos sx) . \sin px . \sin^{2a+1} x \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}\pi}{2^{2a+2}} (e^q-e^{-q})^{2a+1}$ $(e^{pq}-e^{-pq}) \sin(re^{-qs})$ $[p<s-2a-1]$, $= \frac{(-1)^{a-1}\pi}{2^{2a+2}}\{(e^q-e^{-q})^{2a+1}(e^{pq}-e^{-pq})$ $\sin(re^{-qs})-r\}$ $[p=s-2a-1]$ (V, 103).

9) $$\int \left(e^{r\,\mathrm{Sin}\,sx}-e^{-r\,\mathrm{Sin}\,sx}\right)\mathrm{Cos}\,(r\,\mathrm{Cos}\,sx)\,.\,\mathrm{Sin}\,px\,.\,\mathrm{Cos}^a x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+1}q}\left(e^q+e^{-q}\right)^a\left(e^{pq}-e^{-pq}\right)\mathrm{Sin}\,(re^{-qs})\;[p\leqq s-a]$$ (V, 99).

10) $$\int \left(e^{r\,\mathrm{Sin}\,sx}-e^{-r\,\mathrm{Sin}\,sx}\right)\mathrm{Cos}\,(r\,\mathrm{Cos}\,sx)\,.\,\mathrm{Cos}\,px\,.\,\mathrm{Sin}^{2a}x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+1}}\left(e^q-e^{-q}\right)^{2a}\left(e^{pq}+e^{-pq}\right)\mathrm{Sin}\,(re^{-qs})\,[p<s-2a],=\frac{(-1)^a\pi}{2^{2a+1}}\left\{\left(e^q-e^{-q}\right)^{2a}\left(e^{pq}+e^{-pq}\right)\mathrm{Sin}\,(re^{-qs})-r\right\}\,[p=s-2a]$$ (V, 101).

11) $$\int \left(e^{r\,\mathrm{Sin}\,sx}+e^{-r\,\mathrm{Sin}\,sx}\right)\mathrm{Cos}\,(r\,\mathrm{Cos}\,sx)\,.\,\mathrm{Cos}\,px\,.\,\mathrm{Sin}^{2a+1}x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+2}}\left(e^q-e^{-q}\right)^{2a+1}\left\{2e^{-pq}+\left(e^{pq}+e^{-pq}\right)\left[\mathrm{Cos}\,(re^{-qs})-1\right]\right\}[2p>4a+2<s],$$
$$=\frac{(-1)^{a-1}\pi}{2^{2a+2}}\Big[\left(e^q-e^{-q}\right)^{2a+1}\left\{2e^{-pq}+\left(e^{pq}+e^{-pq}\right)\left[\mathrm{Cos}\,(re^{-qs})-1\right]\right\}-2e^{(2a+1-p)q}\sum_0^{d-1}(-1)^n\binom{2a+1}{n}e^{-2nq}-2e^{(p-2a-1)q}\sum_0^{d}(-1)^n\binom{2a+1}{n}e^{2nq}\Big]\,[4a+2>2p<s,\ p\ \text{entier}],$$
$$=\frac{(-1)^{a-1}\pi}{2^{2a+2}}\Big[\left(e^q-e^{-q}\right)^{2a+1}\left\{2e^{-pq}+\left(e^{pq}+e^{-pq}\right)\left[\mathrm{Cos}\,(re^{-qs})-1\right]\right\}-2e^{(2a+1-p)q}\sum_0^{d}(-1)^n\binom{2a+1}{n}e^{-2nq}-2e^{(p-2a-1)q}\sum_0^{d}(-1)^n\binom{2a+1}{n}e^{2nq}\Big]\,[4a+2>2p<s,\ p\ \text{fractionn.}],$$
$$=\frac{(-1)^{a-1}\pi}{2^{2a+2}}\left(e^q-e^{-q}\right)^{2a+1}\left\{2e^{-pq}+\left(e^{pq}+e^{-pq}\right)\left(\mathrm{Cos}\,(re^{-qs})-1+\frac{1}{2}r^2e^{-2qs}\right)\right\}[2s-4a-2=2p>s>4a+2],$$
$$=\frac{(-1)^{a-1}\pi}{2^{2a+2}}\Big[\left(e^q-e^{-q}\right)^{2a+1}\left\{2e^{-pq}+\left(e^{pq}+e^{-pq}\right)\left(\mathrm{Cos}\,(re^{-qs})-1+\frac{1}{2}r^2e^{-2qs}\right)\right\}-2e^{(2a+1-p)q}\sum_0^{d-1}(-1)^n\binom{2a+1}{n}e^{-2nq}-2e^{(p-2a-1)q}\sum_0^{d}(-1)^n\binom{2a+1}{n}e^{2nq}\Big]\,[2s-4a-2=2p<s<4a+2,\ p\ \text{entier}],$$
$$=\frac{(-1)^{a-1}\pi}{2^{2a+2}}\Big[\left(e^q-e^{-q}\right)^{2a+1}\left\{2e^{-pq}+\left(e^{pq}+e^{-pq}\right)\left(\mathrm{Cos}\,(re^{-qs})-1+\frac{1}{2}r^2e^{-2qs}\right)\right\}-2e^{(2a+1-p)q}\sum_0^{d}(-1)^n\binom{2a+1}{n}e^{-2nq}-2e^{(p-2a-1)q}\sum_0^{d}(-1)^n\binom{2a+1}{n}e^{2nq}\Big]\,[2s-4a-2=$$
$$=2p<s<4a+2,\ p\ \text{fractionn.}]\;\left[d=\mathcal{E}\,\frac{1}{2}(2a+1-p)\right]$$ (V, 101, 102).

12) $\int (e^{r \operatorname{Sin} s x}+e^{-r \operatorname{Sin} s x}) \operatorname{Cos}(r \operatorname{Cos} s x) . \operatorname{Cos} p x . \operatorname{Cos}^a x \frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+1} q}(e^q+e^{-q})^a\{2 e^{-p q}+$
$+(e^{p q}+e^{-p q})[\operatorname{Cos}(r e^{-q s})-1]\}$ $[2p \geqq 2a \leqq s]$, $=\frac{\pi}{2^{a+1} q}\Big[(e^q+e^{-q})^a\{2 e^{-p q}+$
$+(e^{p q}+e^{-p q})[\operatorname{Cos}(r e^{-q s})-1]\}-2 e^{(a-p) q} \sum_0^d \binom{a}{n} e^{-2 n q}+2 e^{(p-a) q} \sum_0^d \binom{a}{n} e^{2 n q}\Big]$
$[2a>2p \leqq s]\left[d=\mathcal{E}\frac{1}{2}(a-p)\right]$ (V, 99).

F. Alg. rat. fract. à dén. q^2-x^2;
Exponentielle monôme; TABLE 378. Lim. 0 et ∞.
Circ. Dir. à un ou deux fact.

1) $\int e^{r \operatorname{Cos} s x} \operatorname{Sin}(r \operatorname{Sin} s x) \frac{x dx}{q^2-x^2}=\frac{\pi}{2}\{1-e^{r \operatorname{Cos} q s} \operatorname{Cos}(r \operatorname{Sin} q s)\}$ (VIII, 508).

2) $\int e^{r \operatorname{Cos} s x} \operatorname{Cos}(r \operatorname{Sin} s x) \frac{dx}{q^2-x^2}=\frac{\pi}{2 q} e^{r \operatorname{Cos} q s} \operatorname{Sin}(r \operatorname{Sin} q s)$ (VIII, 507).

3) $\int e^{r \operatorname{Cos} s x} \operatorname{Sin}(p x+r \operatorname{Sin} s x) \frac{x dx}{q^2-x^2}=-\frac{\pi}{2} e^{r \operatorname{Cos} q s} \operatorname{Cos}(p q+r \operatorname{Sin} q s)$ $[p=ds+p']$, $=$
$=\frac{\pi}{2} \frac{r^d}{1^{d/1}}-\frac{\pi}{2} e^{r \operatorname{Cos} q s} \operatorname{Cos}(p q+r \operatorname{Sin} q s)$ $[p=ds]$ (VIII, 508).

4) $\int e^{r \operatorname{Cos} s x} \operatorname{Cos}(p x+r \operatorname{Sin} s x) \frac{dx}{q^2-x^2}=\frac{\pi}{2 q} e^{r \operatorname{Cos} q s} \operatorname{Sin}(p q+r \operatorname{Sin} q s)$ (VIII, 508).

5) $\int e^{r \operatorname{Cos} s x} \operatorname{Sin}(r \operatorname{Sin} s x) . \operatorname{Sin} p x \frac{dx}{q^2-x^2}=-\frac{\pi}{2 q} e^{r \operatorname{Cos} q s} \operatorname{Sin} p q . \operatorname{Cos}(r \operatorname{Sin} q s)+$
$+\frac{\pi}{2 q} \sum_0^d \frac{r^n}{1^{n/1}} \operatorname{Sin}\{(p-n s) q\}$ $[p=ds+p', 0 \leqq p'<s]$ (VIII, 508).

6) $\int e^{r \operatorname{Cos} s x} \operatorname{Sin}(r \operatorname{Sin} s x) . \operatorname{Cos} p x \frac{x dx}{q^2-x^2}=-\frac{\pi}{2} e^{r \operatorname{Cos} q s} \operatorname{Cos} p q . \operatorname{Cos}(r \operatorname{Sin} q s)+$
$+\frac{\pi}{2} \sum_0^d \frac{r^n}{1^{n/1}} \operatorname{Cos}\{(p-n s) q\}$ $[p=ds+p', p'<s]$, $=-\frac{\pi}{2} e^{r \operatorname{Cos} q s} \operatorname{Cos} p q . \operatorname{Cos}(r \operatorname{Sin} q s)+$
$+\frac{\pi}{4} \frac{r^d}{1^{d/1}}+\frac{\pi}{2} \sum_0^d \frac{r^n}{1^{n/1}} \operatorname{Cos}\{(p-n s) q\}$ $[p=ds]$ (VIII, 508)

7) $\int e^{r \operatorname{Cos} s x} \operatorname{Cos}(r \operatorname{Sin} s x) . \operatorname{Sin} p x \frac{x dx}{q^2-x^2}=\frac{\pi}{2} e^{r \operatorname{Cos} q s} \operatorname{Sin} p q . \operatorname{Sin}(r \operatorname{Sin} q s)-$

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$$-\frac{\pi}{2}\sum_0^d \frac{r^n}{1^{n/1}} Cos\{(p-ns)q\} \; [p = ds + p', p' < s], = \frac{\pi}{2} e^{r Cos\, qs} Sin pq . Sin(r Sin qs) +$$
$$+ \frac{\pi}{4} \frac{r^d}{1^{d/1}} - \frac{\pi}{2}\sum_0^d \frac{r^n}{1^{n/1}} Cos\{(p-ns)q\} \; [p = ds] \quad \text{(VIII, 507).}$$

8) $$\int e^{r Cos\, sx} Cos(r Sin sx) . Cos px \frac{dx}{q^2 - x^2} = \frac{\pi}{2q} e^{r Cos\, qs} Cos pq . Sin(r Sin qs) +$$
$$+ \frac{\pi}{2q}\sum_0^d \frac{r^n}{1^{n/1}} Sin\{(p-ns)q\} \; [p = ds + p', 0 \leqq p' < s] \quad \text{(VIII, 507).}$$

9) $$\int e^{r Cos\, sx} Sin(r Cos sx) . Tg sx \frac{dx}{q^2 - x^2} = \frac{\pi}{2q} Tg qs . \{e^r - e^{r Cos\, qs} Cos(r Sin qs)\} \quad \text{(H, 154).}$$

10) $$\int e^{r Cos\, sx} Sin(r Cos sx) . Cot sx \frac{dx}{q^2 - x^2} = \frac{\pi}{2q} Cot qs . \{e^r - e^{r Cos\, qs} Cos(r Sin qs)\} \quad \text{(H, 154).}$$

11) $$\int e^{r Cos\, sx} Sin(r Sin sx + sx) . Tg sx \frac{dx}{q^2 - x^2} = \frac{\pi}{2q} Tg qs . \{e^r - e^{r Cos\, qs} Cos(r Sin qs + qs)\}$$
(H, 156).

12) $$\int e^{r Cos\, sx} Sin(r Sin sx + sx) . Cot sx \frac{dx}{q^2 - x^2} = \frac{\pi}{2q} Cot qs . \{e^r - e^{r Cos\, qs} Cos(r Sin qs + qs)\}$$
(H, 156).

13) $$\int e^{r Cos\, sx} Cos(r Sin sx + sx) . Tg sx \frac{x\,dx}{q^2 - x^2} = \frac{\pi}{2} \{e^{r Cos\, qs} Sin(r Sin qs + qs) . Tg qs + e^r\}$$
(H, 156).

14) $$\int e^{r Cos\, sx} Cos(r Sin sx + sx) . Cot sx \frac{x\,dx}{q^2 - x^2} = \frac{\pi}{2} \{e^{r Cos\, qs} Sin(r Sin qs + qs) . Cot qs - e^r\}$$
(H, 156).

F. Alg. rat. fract. à dén. $q^2 - x^2$;
Exponentielle monôme; TABLE 379. Lim. 0 et ∞.
Circ. Dir. à trois ou quatre fact.

1) $$\int e^{t Cos\, 2rx} Cos^s rx . Sin(srx + t Sin 2rx) . Tg 2rx \frac{dx}{q^2 - x^2} = \frac{\pi}{2q} Tg 2qr . \{e^t - e^{t Cos\, 2qr} Cos^s qr .$$
$$Cos(sqr + t Sin 2qr)\} \quad \text{(H, 159).}$$

2) $$\int e^{t Cos\, 2rx} Cos^s rx . Sin(srx + t Sin 2rx) . Cot 2rx \frac{dx}{q^2 - x^2} = \frac{\pi}{2q} Cot 2qr . \{e^t - e^{t Cos\, 2qr} Cos^s qr .$$
$$Cos(sqr + t Sin 2qr)\} \quad \text{(H, 159).}$$

3) $\int e^{t\,Cos\,2rx}\,Sin^{s-1}rx\,.\,Cos^{p-1}rx\,.\,Sin\left\{\frac{1}{2}s\pi-(p+s)rx-t\,Sin\,2rx\right\}\frac{dx}{q^2-x^2}=$

$=\frac{\pi}{2q}e^{t\,Cos\,2qr}\,Sin^{s-1}qr\,.\,Cos^{p-1}qr\,.\,Cos\left\{\frac{1}{2}s\pi-(p+s)qr-t\,Sin\,2qr\right\}$ (H, 161).

4) $\int e^{t\,Cos\,2rx}\,Cos^s rx\,.\,Sin\left\{(s+2)rx+t\,Sin\,2rx\right\}.\,Tg\,2rx\frac{dx}{q^2-x^2}=\frac{\pi}{2q}Tg\,2qr.[e^t-e^{t\,Cos\,2qr}$

$Cos^s qr\,.\,Cos\left\{(s+2)qr+t\,Sin\,2qr\right\}]$ (H, 165).

5) $\int e^{t\,Cos\,2rx}\,Cos^s rx\,.\,Sin\left\{(s+2)rx+t\,Sin\,2rx\right\}.\,Cot\,2rx\frac{dx}{q^2-x^2}=\frac{\pi}{2q}Cot\,2qr.[e^t-e^{t\,Cos\,2qr}$

$Cos^s qr\,.\,Cos\left\{(s+2)qr+t\,Sin\,2qr\right\}]$ (H, 165).

6) $\int e^{t\,Cos\,2rx}\,Sin^{s-1}rx\,.\,Cos^{p-1}rx\,.\,Cos\left\{\frac{1}{2}s\pi-(p+s)rx-t\,Sin\,2rx\right\}\frac{x\,dx}{q^2-x^2}=$

$=\frac{\pi}{2}e^{t\,Cos\,2qr}\,Sin^{s-1}qr\,.\,Cos^{p-1}qr\,.\,Sin\left\{\frac{1}{2}s\pi-(p+s)qr-t\,Sin\,2qr\right\}$ (H, 161).

7) $\int e^{t\,Cos\,2rx}\,Cos^s rx\,.\,Cos\left\{(s+2)rx+t\,Sin\,2rx\right\}.\,Tg\,2rx\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}[e^t+e^{t\,Cos\,2qr}\,Cos^s qr\,.$

$Tg\,2qr\,.\,Sin\left\{(s+2)qr+t\,Sin\,2qr\right\}]$ (H, 165).

8) $\int e^{t\,Cos\,2rx}\,Cos^s rx\,.\,Cos\left\{(s+2)rx+t\,Sin\,2rx\right\}.\,Cot\,2rx\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}[e^{t\,Cos\,2qr}\,Cos^s qr\,.$

$Cot\,2qr\,.\,Sin\left\{(s+2)qr+t\,Sin\,2qr\right\}-e^t]$ (H, 165).

9) $\int e^{t\,Cos\,2rx}\,Sin^{s-1}rx\,.\,Cos^{p-1}rx\,.\,Sin\left\{\frac{1}{2}s\pi-(p+s+2)rx-t\,Sin\,2rx\right\}\frac{dx}{q^2-x^2}=$

$=\frac{\pi}{2q}e^{t\,Cos\,2qr}\,Sin^{s-1}qr\,.\,Cos^{p-1}qr\,.\,Cos\left\{\frac{1}{2}s\pi-(p+s+2)qr-t\,Sin\,2qr\right\}$ (H, 170).

10) $\int e^{t\,Cos\,2rx}\,Sin^{s-1}rx\,.\,Cos^{p-1}rx\,.\,Cos\left\{\frac{1}{2}s\pi-(p+s+2)rx-t\,Sin\,2rx\right\}\frac{x\,dx}{q^2-x^2}=$

$=\frac{\pi}{2}e^{t\,Cos\,2qr}\,Sin^{s-1}qr\,.\,Cos^{p-1}qr\,.\,Sin\left\{\frac{1}{2}s\pi-(p+s+2)qr-t\,Sin\,2qr\right\}$ (H, 169).

11) $\int e^{t\,Cos\,2rx}\,Sin^s rx\,.\,Cos^p rx\,.\,Sin\left\{\frac{1}{2}s\pi-(p+s)rx-t\,Sin\,2rx\right\}.\,Tg\,2rx\frac{dx}{q^2-x^2}=$

$=\frac{\pi}{2q}e^{t\,Cos\,2qr}\,Sin^s qr\,.\,Cos^p qr\,.\,Tg\,2qr\,.\,Cos\left\{\frac{1}{2}s\pi-(p+s)qr-t\,Sin\,2qr\right\}$ (H, 160).

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F. Alg. rat. fract. à dén. q^2-x^2;
Exponentielle monôme; TABLE 379, suite. Lim. 0 et ∞.
Circ. Dir. à trois ou quatre fact.

12) $$\int e^{t\,Cos\,2rx}\,Sin^s rx.Cos^p rx.Sin\left\{\frac{1}{2}s\pi-(p+s)rx-t\,Sin\,2rx\right\}.Cot\,2rx\,\frac{dx}{q^2-x^2}=$$
$$=\frac{\pi}{2q}e^{t\,Cos\,2qr}Sin^s qr.\,Cos^p qr.Cot\,2qr.Cos\left\{\frac{1}{2}s\pi-(p+s)qr-t\,Sin\,2qr\right\}$$ (H, 161).

13) $$\int e^{t\,Cos\,2rx}\,Sin^s rx.Cos^p rx.Cos\left\{\frac{1}{2}s\pi-(p+s)rx-t\,Sin\,2rx\right\}.Tg\,2rx\,\frac{x\,dx}{q^2-x^2}=$$
$$=\frac{\pi}{2}e^{t\,Cos\,2qr}Sin^s qr.Cos^p qr.Tg\,2qr.Sin\left\{\frac{1}{2}s\pi-(p+s)qr-t\,Sin\,2qr\right\}$$ (H, 160).

14) $$\int e^{t\,Cos\,2rx}\,Sin^s rx.Cos^p rx.Cos\left\{\frac{1}{2}s\pi-(p+s)rx-t\,Sin\,2rx\right\}.Cot\,2rx\,\frac{x\,dx}{q^2-x^2}=$$
$$=\frac{\pi}{2}e^{t\,Cos\,2qr}Sin^s qr.\,Cos^p qr.Cot\,2qr.Sin\left\{\frac{1}{2}s\pi-(p+s)qr-t\,Sin\,2qr\right\}$$ (H, 161).

15) $$\int e^{t\,Cos\,2rx}\,Sin^s rx.Cos^p rx.Sin\left\{\frac{1}{2}s\pi-(p+s+2)rx-t\,Sin\,2rx\right\}.Tg\,2rx\,\frac{dx}{q^2-x^2}=$$
$$=\frac{\pi}{2q}e^{t\,Cos\,2qr}Sin^s qr.\,Cos^p qr.Tg\,2qr.Cos\left\{\frac{1}{2}s\pi-(p+s+2)qr-t\,Sin\,2qr\right\}$$ (H, 169).

16) $$\int e^{t\,Cos\,2rx}\,Sin^s rx.Cos^p rx.Sin\left\{\frac{1}{2}s\pi-(p+s+2)rx-t\,Sin\,2rx\right\}.Cot\,2rx\,\frac{dx}{q^2-x^2}=$$
$$=\frac{\pi}{2q}e^{t\,Cos\,2qr}Sin^s qr.Cos^p qr.Cot\,2qr.Cos\left\{\frac{1}{2}s\pi-(p+s+2)qr-t\,Sin\,2qr\right\}$$ (H, 169).

17) $$\int e^{t\,Cos\,2rx}\,Sin^s rx.Cos^p rx.Cos\left\{\frac{1}{2}s\pi-(p+s+2)rx-t\,Sin\,2rx\right\}.Tg\,2rx\,\frac{x\,dx}{q^2-x^2}=$$
$$=-\frac{\pi}{2}e^{t\,Cos\,2qr}Sin^s qr.Cos^p qr.Tg\,2qr.Sin\left\{\frac{1}{2}s\pi-(p+s+2)qr-t\,Sin\,2qr\right\}$$ (H, 168).

18) $$\int e^{t\,Cos\,2rx}\,Sin^s rx.\,Cos^p rx.Cos\left\{\frac{1}{2}s\pi-(p+s+2)rx-t\,Sin\,2rx\right\}.Cot\,2rx\,\frac{x\,dx}{q^2-x^2}=$$
$$=\frac{\pi}{2}e^{t\,Cos\,2qr}Sin^s qr.\,Cos^p qr.Cot\,2qr.Sin\left\{\frac{1}{2}s\pi-(p+s+2)qr-t\,Sin\,2qr\right\}$$ (H, 169).

F. Alg. rat. fract. à dén. q^2-x^2;
Expon. à expos. polynôme; TABLE 380. Lim. 0 et ∞.
Circulaire Directe.

1) $$\int e^{t\,Cos\,rx+t_1\,Cos\,r_1x+\cdots}Sin\,(t\,Sin\,rx+t_1\,Sin\,r_1x+\ldots)\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\left\{e^{t+t_1+\cdots}-e^{t\,Cos\,qr+t_1\,Cos\,qr_1+\cdots}\right.$$
$$\left.Cos\,(t\,Sin\,qr+t_1\,Sin\,qr_1+\ldots)\right\}$$ (H, 112).

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2) $$\int e^{s \operatorname{Cos} rx + s_1 \operatorname{Cos} r_1 x + \dots} \operatorname{Cos}(s \operatorname{Sin} rx + s_1 \operatorname{Sin} r_1 x + \dots) \frac{dx}{q^2 - x^2} = \frac{\pi}{2q} e^{s \operatorname{Cos} qr + s_1 \operatorname{Cos} qr_1 + \dots}$$
$$\operatorname{Sin}(s \operatorname{Sin} qr + s_1 \operatorname{Sin} qr_1 + \dots) \quad \text{(H, 112).}$$

3) $$\int e^{s \operatorname{Cos} rx + s_1 \operatorname{Cos} r_1 x + \dots} \operatorname{Sin}(s \operatorname{Sin} rx + s_1 \operatorname{Sin} r_1 x + \dots + px) \frac{x\,dx}{q^2 - x^2} = -\frac{\pi}{2} e^{s \operatorname{Cos} qr + s_1 \operatorname{Cos} qr_1 \dots}$$
$$\operatorname{Cos}(s \operatorname{Sin} qr + s_1 \operatorname{Sin} qr_1 + \dots + pq) \quad \text{(H, 114).}$$

4) $$\int e^{s \operatorname{Cos} rx + s_1 \operatorname{Cos} r_1 x + \dots} \operatorname{Cos}(s \operatorname{Sin} rx + s_1 \operatorname{Sin} r_1 x + \dots + px) \frac{dx}{q^2 - x^2} = \frac{\pi}{2q} e^{s \operatorname{Cos} qr + s_1 \operatorname{Cos} qr_1 + \dots}$$
$$\operatorname{Sin}(s \operatorname{Sin} qr + s_1 \operatorname{Sin} qr_1 + \dots + pq) \quad \text{(H, 114).}$$

5) $$\int e^{t \operatorname{Cos} ux + \dots} \operatorname{Sin}^s rx \dots \operatorname{Cos}^n px \dots \operatorname{Sin}\left\{(s + \dots)\frac{1}{2}\pi - (np + \dots + sr + \dots)x - t \operatorname{Sin} ux - \dots\right\} \frac{x\,dx}{q^2 - x^2} =$$
$$= \frac{\pi}{2}\left[e^{t \operatorname{Cos} qu + \dots} \operatorname{Sin}^s qr \dots \operatorname{Cos}^n pq \dots \operatorname{Cos}\left\{(s + \dots)\frac{1}{2}\pi - (np + \dots + sr + \dots)q - t \operatorname{Sin} qu - \dots\right\} -\right.$$
$$\left. - 2^{-s - \dots - n - \dots}\right] \quad \text{(H, 117).}$$

6) $$\int e^{t \operatorname{Cos} ux + \dots} \operatorname{Sin}^s rx \dots \operatorname{Cos}^n px \dots \operatorname{Cos}\left\{(s + \dots)\frac{1}{2}\pi - (np + \dots + sr + \dots)x - t \operatorname{Sin} ux - \dots\right\} \frac{dx}{q^2 - x^2} =$$
$$= -\frac{\pi}{2q} e^{t \operatorname{Cos} qu + \dots} \operatorname{Sin}^s qr \dots \operatorname{Cos}^n pq \dots \operatorname{Sin}\left\{(s + \dots)\frac{1}{2}\pi - (np + \dots + sr + \dots)q -\right.$$
$$\left. - t \operatorname{Sin} qu - \dots\right\} \quad \text{(H, 117).}$$

7) $$\int e^{t \operatorname{Cos} ux + \dots} \operatorname{Sin}^s rx \dots \operatorname{Cos}^n px \dots \operatorname{Sin}\left\{(s + \dots)\frac{1}{2}\pi - (np + \dots + sr + \dots + w)x - t \operatorname{Sin} ux - \dots\right\}$$
$$\frac{x\,dx}{q^2 - x^2} = \frac{\pi}{2} e^{t \operatorname{Cos} qu + \dots} \operatorname{Sin}^s qr \dots \operatorname{Cos}^n pq \dots \operatorname{Cos}\left\{(s + \dots)\frac{1}{2}\pi - (np + \dots + sr + \dots + w)q -\right.$$
$$\left. - t \operatorname{Sin} qu - \dots\right\} \quad \text{(H, 121).}$$

8) $$\int e^{t \operatorname{Cos} ux + \dots} \operatorname{Sin}^s rx \dots \operatorname{Cos}^n px \dots \operatorname{Cos}\left\{(s + \dots)\frac{1}{2}\pi - (np + \dots + sr + \dots + w)x - t \operatorname{Sin} ux - \dots\right\}$$
$$\frac{dx}{q^2 - x^2} = -\frac{\pi}{2q} e^{t \operatorname{Cos} qu + \dots} \operatorname{Sin}^s qr \dots \operatorname{Cos}^n pq \dots \operatorname{Sin}\left\{(s + \dots)\frac{1}{2}\pi - (np + \dots + sr + \dots + w)q -\right.$$
$$\left. - t \operatorname{Sin} qu - \dots\right\} \quad \text{(H, 121).}$$

1) $\int (e^{r\,Sin\,s\,x}+e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x)\frac{dx}{q^2-x^2}=\frac{\pi}{2q}(e^{r\,Sin\,q\,s}-e^{-r\,Sin\,q\,s})\,Cos\,(r\,Cos\,q\,s)$ (VIII, 510).

2) $\int (e^{r\,Sin\,s\,x}-e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x)\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\left\{(e^{r\,Sin\,q\,s}+e^{-r\,Sin\,q\,s})\,Cos\,(r\,Cos\,q\,s)-2\right\}$ (VIII, 510).

3) $\int (e^{r\,Sin\,s\,x}+e^{-r\,Sin\,s\,x})\,Cos\,(r\,Cos\,s\,x)\frac{dx}{q^2-x^2}=\frac{\pi}{2q}(e^{-r\,Sin\,q\,s}-e^{r\,Sin\,q\,s})\,Sin\,(r\,Cos\,q\,s)$ (VIII, 510).

4) $\int (e^{r\,Sin\,s\,x}-e^{-r\,Sin\,s\,x})\,Cos\,(r\,Cos\,s\,x)\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\left\{2\,r\,Cos\,q\,s-(e^{r\,Sin\,q\,s}+e^{-r\,Sin\,q\,s})\,Sin\,(r\,Cos\,q\,s)\right\}$ (VIII, 510).

5) $\int (e^{r\,Sin\,s\,x}+e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x).Sin\,p\,x\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}(e^{r\,Sin\,q\,s}-e^{-r\,Sin\,q\,s})\,Sin\,(r\,Cos\,q\,s).Sin\,p\,q-$
$-\pi\sum_0^d\frac{r^{2n+1}}{1^{2n+1/1}}(-1)^n\,Cos\,\{(p-2ns-s)q\}\;[p=(2d+1)s+p',\,p'<2s],=$
$=\frac{\pi}{2}(e^{r\,Sin\,q\,s}-e^{-r\,Sin\,q\,s})\,Sin\,(r\,Cos\,q\,s).Sin\,p\,q+\frac{\pi r}{2}\frac{(-r^2)^d}{1^{2d+1/1}}-\pi\sum_0^d\frac{r^{2n+1}}{1^{2n+1/1}}(-1)^n$
$Cos\,\{(p-2ns-s)q\}\;[p=(2d+1)s]$ (VIII, 510).

6) $\int (e^{r\,Sin\,s\,x}-e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x).Sin\,p\,x\frac{dx}{q^2-x^2}=\frac{\pi}{2q}(e^{r\,Sin\,q\,s}+e^{-r\,Sin\,q\,s})\,Cos(r\,Cos\,q\,s).Sin\,p\,q-$
$-\frac{\pi}{q}\sum_0^d\frac{r^{2n}}{1^{2n/1}}(-1)^n\,Sin\,\{(p-2ns)q\}\;[p=2ds+p',\,0\leqq p'<2s]$ (VIII, 511).

7) $\int (e^{r\,Sin\,s\,x}+e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x).Cos\,p\,x\frac{dx}{q^2-x^2}=\frac{\pi}{2q}(e^{r\,Sin\,q\,s}-e^{-r\,Sin\,q\,s})\,Cos(r\,Cos\,q\,s).Cos\,p\,q+$
$+\frac{\pi}{q}\sum_0^d\frac{r^{2n+1}}{1^{2n+1/1}}(-1)^n\,Sin\,\{(p-2ns-s)q\}\;[p=(2d+1)s+p',\,0\leqq p'<2s+1]$ (VIII, 510).

8) $\int (e^{r\,Sin\,s\,x}-e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x).Cos\,p\,x\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}(e^{r\,Sin\,q\,s}+e^{-r\,Sin\,q\,s})\,Sin\,(r\,Cos\,q\,s).Cos\,p\,q-$
$-\pi\sum_0^d\frac{r^{2n}}{1^{2n/1}}(-1)^n\,Sin\,\{(p-2ns)q\}\;[p=2ds+p',\,p'<2s],=\frac{\pi}{2}(e^{r\,Sin\,q\,s}+e^{-r\,Sin\,q\,s})$
$Sin\,(r\,Cos\,q\,s).Cos\,p\,q-\frac{\pi}{2}\frac{(-r^2)^d}{1^{2d/1}}-\pi\sum_0^d\frac{r^{2n}}{1^{2n/1}}(-1)^n\,Sin\,\{(p-2ns)q\}\;[p=2ds]$ (VIII, 511).

9) $\int (e^{r\,Sin\,s\,x}+e^{-r\,Sin\,s\,x})\,Cos\,(r\,Cos\,s\,x).Sin\,p\,x\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}(e^{-r\,Sin\,q\,s}-e^{r\,Sin\,q\,s})\,Cos\,(r\,Cos\,q\,s).Sin\,p\,q-$
$-\pi\sum_0^d\frac{r^{2n}}{1^{2n/1}}(-1)^n\,Cos\,\{(p-2ns)q\}\;[p=2ds+p',\,p'<2s],=\frac{\pi}{2}(e^{-r\,Sin\,q\,s}-e^{r\,Sin\,q\,s})$
$Cos\,(r\,Cos\,q\,s).Sin\,p\,q+\frac{\pi}{2}\frac{(-r^2)^d}{1^{2d/1}}-\pi\sum_0^d\frac{r^{2n}}{1^{2n/1}}(-1)^n\,Cos\,\{(p-2ns)q\}\;[p=2ds]$ (VIII, 510).

10) $\int (e^{r\,Sin\,sx}-e^{-r\,Sin\,sx})\,Cos(r\,Cos\,sx).Sin\,px\,\frac{dx}{q^2-x^2}=-\frac{\pi}{2q}(e^{r\,Sin\,qs}+e^{-r\,Sin\,qs})\,Sin(r\,Cos\,qs).$
$Sin\,pq+\frac{\pi}{q}\sum_0^d\frac{r^{2n+1}}{1^{2n+1/1}}(-1)^n\,Sin\{(p-2ns-s)q\}$ $[p=(2d+1)s+p',\ 0\leq p'<2s]$ (VIII, 511).

11) $\int (e^{r\,Sin\,sx}+e^{-r\,Sin\,sx})\,Cos(r\,Cos\,sx).Cos\,px\,\frac{dx}{q^2-x^2}=\frac{\pi}{2q}(e^{-r\,Sin\,qs}-e^{r\,Sin\,qs})\,Sin(r\,Cos\,qs).$
$Cos\,pq+\frac{\pi}{q}\sum_0^d\frac{r^{2n}}{1^{2n/1}}(-1)^n\,Sin\{(p-2ns)q\}$ $[p=2ds+p',\ 0\leq p'<2s]$ (VIII, 510).

12) $\int (e^{r\,Sin\,sx}-e^{-r\,Sin\,sx})\,Cos(r\,Cos\,sx).Cos\,px\,\frac{x\,dx}{q^2-x^2}=-\frac{\pi}{2}(e^{r\,Sin\,qs}+e^{-r\,Sin\,qs})\,Sin(r\,Cos\,qs).$
$Cos\,pq+\pi\sum_0^d\frac{r^{2n+1}}{1^{2n+1/1}}(-1)^n\,Sin\{(p-2ns-s)q\}$ $[p=(2d+1)s+p',\ p'<2s]$, $=$
$=-\frac{\pi}{2}(e^{r\,Sin\,qs}+e^{-r\,Sin\,qs})\,Sin(r\,Cos\,qs).Cos\,pq+\frac{\pi r}{2}\frac{(-r^2)^d}{1^{2d+1/1}}+\pi\sum_0^d\frac{r^{2n+1}}{1^{2n+1/1}}(-1)^n$
$Sin\{(p-2ns-s)q\}$ $[p=(2d+1)s]$ (VIII, 511).

13) $\int \{1-e^{t\,Cos\,rx}\,Cos(s\,Sin\,rx)\}\,Tg\,rx\,\frac{x\,dx}{q^2-x^2}=-\frac{\pi}{2}\{e^t+e^{t\,Cos\,qr}\,Sin(s\,Sin\,qr).Tg\,qr\}$ (H, 154).

14) $\int \{1-e^{t\,Cos\,rx}\,Cos(s\,Sin\,rx)\}\,Cot\,rx\,\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\{e^t-e^{t\,Cos\,qr}\,Sin(s\,Sin\,qr).Cot\,qr\}$ (H, 154).

15) $\int \{1-e^{t\,Cos\,2rx}\,Cos^s\,rx.Cos(srx+t\,Sin\,2rx)\}\,Tg\,2rx\,\frac{x\,dx}{q^2-x^2}=-\frac{\pi}{2}\{e^t+e^{t\,Cos\,2qr}\,Cos^s\,qr.$
$Tg\,2qr.Sin(sqr+t\,Sin\,2qr)\}$ (H, 159).

16) $\int \{1-e^{t\,Cos\,2rx}\,Cos^s\,rx.Cos(srx+t\,Sin\,2rx)\}\,Cot\,2rx\,\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\{e^t-e^{t\,Cos\,2qr}\,Cos^s\,qr.$
$Cot\,2qr.Sin(sqr+t\,Sin\,2qr)\}$ (H, 159).

F. Alg. rat. fract. à dén. $4m^4+x^4$;
Expon. de Circulaire Directe; **TABLE 382.** Lim. 0 et ∞.
Circulaire Directe.

1) $\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\cdots}\,Sin(s\,Sin\,rx+s_1\,Sin\,r_1x+\ldots)\,\frac{x\,dx}{4m^4+x^4}=$
$=\frac{\pi}{4m^2}e^{se^{-mr}Cos\,mr+s_1e^{-mr_1}Cos\,mr_1+\cdots}\{Sin(se^{-mr}\,Sin\,mr+s_1e^{-mr_1}\,Sin\,mr_1+\ldots)\}$
(H, 65).

2) $$\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots} Sin\,(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots)\frac{x^3\,dx}{4m^4+x^4}=$$
$$=\frac{\pi}{2}e^{se^{-mr}Cos\,mr+s_1e^{-mr_1}Cos\,mr_1+\dots}\left\{Cos\,(se^{-mr}\,Sin\,mr+s_1e^{-mr_1}\,Sin\,mr_1+\dots)-e^{s+s_1+\dots}\right\}$$
(H, 66).

3) $$\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots} Cos\,(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots)\frac{dx}{4m^4+x^4}=$$
$$=\frac{\pi}{8m^3}e^{se^{-mr}Cos\,mr+s_1e^{-mr_1}Cos\,mr_1+\dots}\left\{Cos\,(se^{-mr}\,Sin\,mr+s_1e^{-mr_1}\,Sin\,mr_1+\dots)+\right.$$
$$\left.+Sin\,(se^{-mr}\,Sin\,mr+s_1e^{-mr_1}\,Sin\,mr_1+\dots)\right\}$$ (H, 65).

4) $$\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots} Cos\,(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots)\frac{x^2\,dx}{4m^4+x^4}=$$
$$=\frac{\pi}{4m}e^{se^{-mr}Cos\,mr+s_1e^{-mr_1}Cos\,mr_1+\dots}\left\{Cos\,(se^{-mr}\,Sin\,mr+s_1e^{-mr_1}\,Sin\,mr_1+\dots)-\right.$$
$$\left.-Sin\,(se^{-mr}\,Sin\,mr+s_1e^{-mr_1}\,Sin\,mr_1+\dots)\right\}$$ (H, 65).

5) $$\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots} Sin\,(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots+px)\frac{x\,dx}{4m^4+x^4}=$$
$$=\frac{\pi}{4m^2}e^{se^{-mr}Cos\,mr+s_1e^{-mr_1}Cos\,mr_1+\dots-mp}\,Sin\,(se^{-mr}\,Sin\,mr+s_1e^{-mr_1}\,Sin\,mr_1+\dots+mp)$$
(H, 69).

6) $$\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots} Sin\,(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots+px)\frac{x^3\,dx}{4m^4+x^4}=$$
$$=\frac{\pi}{2}e^{se^{-mr}Cos\,mr+s_1e^{-mr_1}Cos\,mr_1+\dots-mp}\left\{Cos\,(se^{-mr}\,Sin\,mr+s_1e^{-mr_1}\,Sin\,mr_1+\dots+mp)-\right.$$
$$\left.-e^{s+s_1+\dots}\right\}$$ (H, 69).

7) $$\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots} Cos\,(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots+px)\frac{dx}{4m^4+x^4}=$$
$$=\frac{\pi}{8m^3}e^{se^{-mr}Cos\,mr+s_1e^{-mr_1}Cos\,mr_1+\dots-mp}\left\{Cos\,(se^{-mr}\,Sin\,mr+s_1e^{-mr_1}\,Sin\,mr_1+\dots+mp)+\right.$$
$$\left.+Sin\,(se^{-mr}\,Sin\,mr+s_1e^{-mr_1}\,Sin\,mr_1+\dots+mp)\right\}$$ (H, 69).

8) $$\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots} Cos\,(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots+px)\frac{x^2\,dx}{4m^4+x^4}=$$
$$=\frac{\pi}{4m}e^{se^{-mr}Cos\,mr+s_1e^{-mr_1}Cos\,mr_1+\dots-mp}\left\{Cos\,(se^{-mr}\,Sin\,mr+s_1e^{-mr_1}\,Sin\,mr_1+\dots+mp)-\right.$$
$$\left.-Sin\,(se^{-mr}\,Sin\,mr+s_1e^{-mr_1}\,Sin\,mr_1+\dots+mp)\right\}$$ (H, 69).

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9) $\int e^{t\,Cos\,ux+\dots} Sin^s rx \dots Cos^q px \dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(qp+\dots+sr+\dots)x-t\,Sin\,ux-\dots\right\}$

$\frac{x\,dx}{4m^4+x^4}=\frac{-\pi}{2^{2+q+\dots+s+\dots}m^2}(1+2e^{-2mp}Cos\,2mp+e^{-4mp})^{\frac{1}{2}q}\dots(1-2e^{-2mr}Cos\,2mr+$

$+e^{-4mr})^{\frac{1}{2}s}\dots e^{t\,e^{-mu}Cos\,mu+\dots}Sin\left\{q\,Arctg\frac{Sin\,2mp}{e^{2mp}+Cos\,2mp}+\dots-s\,Arctg\frac{Sin\,2mr}{e^{2mr}-Cos\,2mr}-\dots+\right.$

$\left.+t\,e^{-mu}Sin\,mu+\dots\right\}$ (H, 74).

10) $\int e^{t\,Cos\,ux+\dots} Sin^s rx \dots Cos^q px \dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(qp+\dots+sr+\dots)x-t\,Sin\,ux-\dots\right\}$

$\frac{x^3\,dx}{4m^4+x^4}=\frac{\pi}{2^{1+q+\dots+s+\dots}}\Big[e^{t+\dots}-(1+2e^{-2mp}Cos\,2mp+e^{-4mp})^{\frac{1}{2}q}\dots(1-2e^{-2mr}Cos\,2mr+$

$+e^{-4mr})^{\frac{1}{2}s}\dots e^{t\,e^{-mu}Cos\,mu+\dots}Cos\left\{q\,Arctg\frac{Sin\,2mp}{e^{2mp}+Cos\,2mp}+\dots-s\,Arctg\frac{Sin\,2mr}{e^{2mr}-Cos\,2mr}-\dots+\right.$

$\left.+t\,e^{-mu}Sin\,mu+\dots\right\}\Big]$ (H, 74).

11) $\int e^{t\,Cos\,ux+\dots} Sin^s rx \dots Cos^q px \dots Cos\left\{(s+\dots)\frac{1}{2}\pi-(qp+\dots+sr+\dots)x-t\,Sin\,ux-\dots\right\}$

$\frac{dx}{4m^4+x^4}=\frac{\pi}{2^{3+q+\dots+s+\dots}m^3}(1+2e^{-2mp}Cos\,2mp+e^{-4mp})^{\frac{1}{2}q}\dots(1-2e^{-2mr}Cos\,2mr+$

$+e^{-4mr})^{\frac{1}{2}s}\dots e^{t\,e^{-mu}Cos\,mu+\dots}\Big[Cos\left\{q\,Arctg\frac{Sin\,2mp}{e^{2mp}+Cos\,2mp}+\dots-s\,Arctg\frac{Sin\,2mr}{e^{2mr}-Cos\,2mr}-\dots+\right.$

$\left.+t\,e^{-mu}Sin\,mu+\dots\right\}+Sin\left\{q\,Arctg\frac{Sin\,2mp}{e^{2mp}+Cos\,2mp}+\dots-s\,Arctg\frac{Sin\,2mr}{e^{2mr}-Cos\,2mr}-\dots+\right.$

$\left.+t\,e^{-mu}Sin\,mu+\dots\right\}\Big]$ (H, 73).

12) $\int e^{t\,Cos\,ux+\dots} Sin^s rx \dots Cos^q px \dots Cos\left\{(s+\dots)\frac{1}{2}\pi-(qp+\dots+sr+\dots)x-t\,Sin\,ux-\dots\right\}$

$\frac{x^2\,dx}{4m^4+x^4}=\frac{\pi}{2^{2+q+\dots+s+\dots}m}(1+2e^{-2mp}Cos\,2mp+e^{-4mp})^{\frac{1}{2}q}\dots(1-2e^{-2mr}Cos\,2mr+$

$+e^{-4mr})^{\frac{1}{2}s}\dots e^{t\,e^{-mu}Cos\,mu+\dots}\Big[Cos\left\{q\,Arctg\frac{Sin\,2mp}{e^{2mp}+Cos\,2mp}+\dots-s\,Arctg\frac{Sin\,2mr}{e^{2mr}-Cos\,2mr}-\dots+\right.$

$\left.+t\,e^{-mu}Sin\,mu+\dots\right\}-Sin\left\{q\,Arctg\frac{Sin\,2mp}{e^{2mp}+Cos\,2mp}+\dots-s\,Arctg\frac{Sin\,2mr}{e^{2mr}-Cos\,2mr}-\dots+\right.$

$\left.+t\,e^{-mu}Sin\,mu+\dots\right\}\Big]$ (H, 73).

13) $$\int e^{t\,Cos\,ux+\cdots} Sin^s rx \dots Cos^q px \dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(qp+\dots+sr+\dots+w)x-t\,Sin\,ux-\dots\right\}$$
$$\frac{x\,dx}{4m^4+x^4}=\frac{-\pi}{2^{2+q+\dots+s+\dots}m^2}(1+2e^{-2mp}Cos\,2mp+e^{-4mp})^{\frac{1}{2}q}\dots(1-2e^{-2mr}Cos\,2mr+$$
$$+e^{-4mr})^{\frac{1}{2}s}\dots e^{t\,e^{-mu}Cos\,mu+\dots-mw}Sin\left\{q\,Arctg\frac{Sin\,2mp}{e^{2mp}+Cos\,2mp}+\dots-s\,Arctg\frac{Sin\,2mr}{e^{2mr}-Cos\,2mr}-\dots+\right.$$
$$\left.+te^{-mu}Sin\,mu+\dots-mw\right\}\ \text{(H, 80).}$$

14) $$\int e^{t\,Cos\,ux+\cdots} Sin^s rx \dots Cos^q px \dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(qp+\dots+sr+\dots+w)x-t\,Sin\,ux-\dots\right\}$$
$$\frac{x^3\,dx}{4m^4+x^4}=\frac{\pi}{2^{1+q+\dots+s+\dots}}(1+2e^{-2mp}Cos\,2mp+e^{-4mp})^{\frac{1}{2}q}\dots(1-2e^{-2mr}Cos\,2mr+$$
$$+e^{-4mr})^{\frac{1}{2}s}\dots e^{t\,e^{-mu}Cos\,mu+\dots-mw}Cos\left\{q\,Arctg\frac{Sin\,2mp}{e^{2mp}+Cos\,2mp}+\dots-s\,Arctg\frac{Sin\,2mr}{e^{2mr}-Cos\,2mr}-\dots+\right.$$
$$\left.+te^{-mu}Sin\,mu+\dots-mw\right\}\ \text{(H, 80).}$$

15) $$\int e^{t\,Cos\,ux+\cdots} Sin^s rx \dots Cos^q px \dots Cos\left\{(s+\dots)\frac{1}{2}\pi-(qp+\dots+sr+\dots+w)x-t\,Sin\,ux-\dots\right\}$$
$$\frac{dx}{4m^4+x^4}=\frac{\pi}{2^{3+q+\dots+s+\dots}m^3}(1+2e^{-2mp}Cos\,2mp+e^{-4mp})^{\frac{1}{2}q}\dots(1-2e^{-2mr}Cos\,2mr+$$
$$+e^{-4mr})^{\frac{1}{2}s}\dots e^{t\,e^{-mu}Cos\,mu+\dots-mw}\left[Cos\left\{q\,Arctg\frac{Sin\,2mp}{e^{2mp}+Cos\,2mp}+\dots-s\,Arctg\frac{Sin\,2mr}{e^{2mr}-Cos\,2mr}-\dots+\right.\right.$$
$$\left.+te^{-mu}Sin\,mu+\dots-mw\right\}+Sin\left\{q\,Arctg\frac{Sin\,2mp}{e^{2mp}+Cos\,2mp}+\dots-s\,Arctg\frac{Sin\,2mr}{e^{2mr}-Cos\,2mr}-\dots+\right.$$
$$\left.\left.+te^{-mu}Sin\,mu+\dots-mw\right\}\right]\ \text{(H, 79).}$$

16) $$\int e^{t\,Cos\,ux+\cdots} Sin^s rx \dots Cos^q px \dots Cos\left\{(s+\dots)\frac{1}{2}\pi-(qp+\dots+sr+\dots+w)x-t\,Sin\,ux-\dots\right\}$$
$$\frac{x^2\,dx}{4m^4+x^4}=\frac{\pi}{2^{2+q+\dots+s+\dots}m}(1+2e^{-2mp}Cos\,2mp+e^{-4mp})^{\frac{1}{2}q}\dots(1-2e^{-2mr}Cos\,2mr+$$
$$+e^{-4mr})^{\frac{1}{2}s}\dots e^{t\,e^{-mu}Cos\,mu+\dots-mw}\left[Cos\left\{q\,Arctg\frac{Sin\,2mp}{e^{2mp}+Cos\,2mp}+\dots-s\,Arctg\frac{Sin\,2mr}{e^{2mr}-Cos\,2mr}-\dots+\right.\right.$$
$$\left.+te^{-mu}Sin\,mu+\dots-mw\right\}-Sin\left\{q\,Arctg\frac{Sin\,2mp}{e^{2mp}+Cos\,2mp}+\dots-s\,Arctg\frac{Sin\,2mr}{e^{2mr}-Cos\,2mr}-\dots+\right.$$
$$\left.\left.+te^{-mu}Sin\,mu+\dots-mw\right\}\right]\ \text{(H, 79).}$$

1) $$\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\cdots} Sin\,(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\ldots)\frac{x\,dx}{q^4-x^4}=\frac{\pi}{4q^2}\left\{e^{s\,e^{-qr}+s_1\,e^{-qr_1}+\cdots}-\right.$$
$$\left.-e^{s\,Cos\,q\,r+s_1\,Cos\,q\,r_1+\cdots}Cos\,(s\,Sin\,q\,r+s_1\,Sin\,q\,r_1+\ldots)\right\}$$ (H, 113).

2) $$\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\cdots} Sin\,(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\ldots)\frac{x^3\,dx}{q^4-x^4}=\frac{\pi}{4}\left\{2-e^{s\,e^{-qr}+s_1\,e^{-qr_1}+\cdots}-\right.$$
$$\left.-e^{s\,Cos\,q\,r+s_1\,Cos\,q\,r_1+\cdots}Cos\,(s\,Sin\,q\,r+s_1\,Sin\,q\,r_1+\ldots)\right\}$$ (H, 113).

3) $$\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\cdots} Cos\,(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\ldots)\frac{dx}{q^4-x^4}=\frac{\pi}{4q^3}\left\{e^{s\,e^{-qr}+s_1\,e^{-qr_1}+\cdots}+\right.$$
$$\left.+e^{s\,Cos\,q\,r+s_1\,Cos\,q\,r_1+\cdots}Sin\,(s\,Sin\,q\,r+s_1\,Sin\,q\,r_1+\ldots)\right\}$$ (H, 113).

4) $$\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\cdots} Cos\,(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\ldots)\frac{x^2\,dx}{q^4-x^4}=\frac{\pi}{4q}\left\{e^{s\,Cos\,q\,r+s_1\,Cos\,q\,r_1+\cdots}\right.$$
$$\left.Sin\,(s\,Sin\,q\,r+s_1\,Sin\,q\,r_1+\ldots)-e^{s\,e^{-qr}+s_1\,e^{-qr_1}+\cdots}\right\}$$ (H, 113).

5) $$\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\cdots} Sin(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\ldots+p\,x)\frac{x\,dx}{q^4-x^4}=\frac{\pi}{4q^2}\left\{e^{s\,e^{-qr}+s_1\,e^{-qr_1}+\cdots-pq}-\right.$$
$$\left.-e^{s\,Cos\,q\,r+s_1\,Cos\,q\,r_1+\cdots}Cos\,(s\,Sin\,q\,r+s_1\,Sin\,q\,r_1+\ldots+p\,q)\right\}$$ (H, 115).

6) $$\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\cdots} Sin(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\ldots+p\,x)\frac{x^3\,dx}{q^4-x^4}=\frac{-\pi}{4}\left\{e^{s\,e^{-qr}+s_1\,e^{-qr_1}+\cdots-pq}+\right.$$
$$\left.+e^{s\,Cos\,q\,r+s_1\,Cos\,q\,r_1+\cdots}Cos\,(s\,Sin\,q\,r+s_1\,Sin\,q\,r_1+\ldots+p\,q)\right\}$$ (H, 115).

7) $$\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\cdots} Cos(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\ldots+p\,x)\frac{dx}{q^4-x^4}=\frac{\pi}{4q^3}\left\{e^{s\,e^{-qr}+s_1\,e^{-qr_1}+\cdots-pq}+\right.$$
$$\left.+e^{s\,Cos\,q\,r+s_1\,Cos\,q\,r_1+\cdots}Sin\,(s\,Sin\,q\,r+s_1\,Sin\,q\,r_1+\ldots+p\,q)\right\}$$ (H, 115).

8) $$\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\cdots} Cos\,(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\ldots+p\,x)\frac{x^2\,dx}{q^4-x^4}=\frac{\pi}{4q}\left\{e^{s\,Cos\,q\,r+s_1\,Cos\,q\,r_1+\cdots}\right.$$
$$\left.Sin\,(s\,Sin\,q\,r+s_1\,Sin\,q\,r_1+\ldots+p\,q)-e^{s\,e^{-qr}+s_1\,e^{-qr_1}+\cdots-pq}\right\}$$ (H, 115).

9) $$\int e^{t\,Cos\,u\,x+\cdots} Sin^s\,r\,x\ldots Cos^n\,p\,x\ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+sr+\ldots)x-t\,Sin\,u\,x-\ldots\right\}$$
$$\frac{x\,dx}{q^4-x^4}=\frac{\pi}{4q^2}\left[e^{t\,Cos\,q\,u+\cdots}Sin^s\,q\,r\ldots Cos^n\,p\,q\ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+sr+\ldots)q-\right.\right.$$
$$\left.\left.-t\,Sin\,q\,u-\ldots\right\}-2^{-n-\cdots-s-\cdots}(1+e^{-2pq})^n\ldots(1-e^{-2qr})^s\ldots e^{t\,e^{-qu}+\cdots}\right]$$ (H, 118).

10) $\int e^{t\,Cos\,ux+\cdots}\,Sin^s rx\ldots Cos^n px\ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+sr+\ldots)x-t\,Sin\,ux-\ldots\right\}$
$\frac{x^3\,dx}{q^4-x^4}=\frac{\pi}{4}\Big[2^{-n-\ldots-s-\cdots}(1+e^{-2pq})^n\ldots(1-e^{-2qr})^s\ldots e^{te^{-qu}+\cdots}+e^{t\,Cos\,qu+\cdots}$
$Sin^s qr\ldots Cos^n pq\ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+sr+\ldots)q-t\,Sin\,qu-\ldots\right\}-2\Big]$ (H, 118).

11) $\int e^{t\,Cos\,ux+\cdots}\,Sin^s rx\ldots Cos^n px\ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+sr+\ldots)x-t\,Sin\,ux-\ldots\right\}$
$\frac{dx}{q^4-x^4}=\frac{\pi}{4q^3}\Big[2^{-n-\ldots-s-\cdots}(1+e^{-2pq})^n\ldots(1-e^{-2qr})^s\ldots e^{te^{-qu}+\cdots}-e^{t\,Cos\,qu+\cdots}$
$Sin^s qr\ldots Cos^n pq\ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+sr+\ldots)q-t\,Sin\,qu-\ldots\right\}\Big]$ (H, 118).

12) $\int e^{t\,Cos\,ux+\cdots}\,Sin^s rx\ldots Cos^n px\ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+sr+\ldots)x-t\,Sin\,ux-\ldots\right\}$
$\frac{x^2\,dx}{q^4-x^4}=\frac{-\pi}{4q}\Big[e^{t\,Cos\,qu+\cdots}\,Sin^s qr\ldots Cos^n pq\ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+sr+\ldots)q-\right.$
$\left.-t\,Sin\,qu-\ldots\right\}+2^{-n-\ldots-s-\cdots}(1+e^{-2pq})^n\ldots(1-e^{-2qr})^s\ldots e^{te^{-qu}+\cdots}\Big]$ (H, 118).

13) $\int e^{t\,Cos\,ux+\cdots}\,Sin^s rx\ldots Cos^n px\ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+sr+\ldots+w)x-t\,Sin\,ux-\ldots\right\}$
$\frac{x\,dx}{q^4-x^4}=\frac{\pi}{4q^2}\Big[e^{t\,Cos\,qu+\cdots}\,Sin^s qr\ldots Cos^n pq\ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+sr+\ldots+w)q-\right.$
$\left.-t\,Sin\,qu-\ldots\right\}-2^{-n-\ldots-s-\cdots}(1+e^{-2pq})^n\ldots(1-e^{-2qr})^s\ldots e^{te^{-qu}+\cdots-wq}\Big]$ (H, 123).

14) $\int e^{t\,Cos\,ux+\cdots}\,Sin^s rx\ldots Cos^n px\ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+sr+\ldots+w)x-t\,Sin\,ux-\ldots\right\}$
$\frac{x^3\,dx}{q^4-x^4}=\frac{\pi}{4}\Big[2^{-n-\ldots-s-\cdots}(1+e^{-2pq})^n\ldots(1-e^{-2qr})^s\ldots e^{te^{-qu}+\cdots-wq}+e^{t\,Cos\,qu+\cdots}$
$Sin^s qr\ldots Cos^n pq\ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+sr+\ldots+w)q-t\,Sin\,qu-\ldots\right\}\Big]$ (H, 123).

15) $\int e^{t\,Cos\,ux+\cdots}\,Sin^s rx\ldots Cos^n px\ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+sr+\ldots+w)x-t\,Sin\,ux-\ldots\right\}$
$\frac{dx}{q^4-x^4}=\frac{\pi}{4q^3}\Big[2^{-n-\ldots-s-\cdots}(1+e^{-2pq})^n\ldots(1-e^{-2qr})^s\ldots e^{te^{-qu}+\cdots-wq}-e^{t\,Cos\,qu+\cdots}$
$Sin^s qr\ldots Cos^n pq\ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+sr+\ldots+w)q-t\,Sin\,qu-\ldots\right\}\Big]$ (H, 122).

16) $\int e^{t\,Cos\,u\,x+\dots} Sin^s\,r\,x\dots Cos^n\,p\,x\dots Cos\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots+w)x-t\,Sin\,u\,x-\dots\right\}$

$\frac{x^2\,dx}{q^4-x^4}=\frac{-\pi}{4q}\left[e^{t\,Cos\,q\,u+\dots} Sin^s\,q\,r\dots Cos^n\,p\,q\dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots+w)\,q-\right.\right.$

$\left.\left.-t\,Sin\,q\,u-\dots\right\}+2^{-n-\dots-s-\dots}(1+e^{-2pq})^n\dots(1-e^{-2qr})^s\dots e^{t\,e^{-qu}+\dots-wq}\right]$ (H, 122).

F. Alg. rat. fract. à dén. $(q^2-x^2)^2$;
Expon. de Circ. Directe;
Circulaire Directe.

TABLE 384.

Lim. 0 et ∞.

1) $\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\dots} Sin(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\dots)\frac{x\,dx}{(q^2-x^2)^2}=\frac{\pi}{4q}e^{s\,Cos\,q\,r+s_1\,Cos\,q\,r_1+\dots}$

$\{s\,r\,Sin(s\,Sin\,q\,r+q\,r)+s_1\,r_1\,Sin(s_1\,Sin\,q\,r_1+q\,r_1)+\dots\}$ (H, 114).

2) $\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\dots} Sin(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\dots)\frac{x^2\,dx}{(q^2-x^2)^2}=\frac{\pi}{4}\left[e^{s\,Cos\,q\,r+s_1\,Cos\,q\,r_1+\dots}\right.$

$\left\{2\,Cos(s\,Sin\,q\,r+s_1\,Sin\,q\,r_1+\dots)-q\,\{s\,r\,Sin(s\,Sin\,q\,r+q\,r)+\right.$

$\left.\left.+s_1\,r_1\,Sin(s_1\,Sin\,q\,r_1+q\,r_1)+\dots\}\right\}-2\right]$ (H, 114).

3) $\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\dots} Cos(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\dots)\frac{dx}{(q^2-x^2)^2}=\frac{\pi}{4q^3}e^{s\,Cos\,q\,r+s_1\,Cos\,q\,r_1+\dots}$

$[Sin(s\,Sin\,q\,r+s_1\,Sin\,q\,r_1+\dots)-q\,\{s\,r\,Cos(s\,Sin\,q\,r+q\,r)+s_1\,r_1\,Cos(s_1\,Sin\,q\,r_1+q\,r_1)+\dots\}]$

(H, 113).

4) $\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\dots} Cos(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\dots)\frac{x^2\,dx}{(q^2-x^2)^2}=\frac{-\pi}{4q}e^{s\,Cos\,q\,r+s_1\,Cos\,q\,r_1+\dots}$

$[Sin(s\,Sin\,q\,r+s_1\,Sin\,q\,r_1+\dots)+q\,\{s\,r\,Cos(s\,Sin\,q\,r+q\,r)+s_1\,r_1\,Cos(s_1\,Sin\,q\,r_1+q\,r_1)+\dots\}]$

(H, 114).

5) $\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\dots} Sin(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\dots+r_a\,x)\frac{x\,dx}{(q^2-x^2)^2}=\frac{\pi}{4q}e^{s\,Cos\,q\,r+s_1\,Cos\,q\,r_1+\dots}$

$[Cos\,q\,r_a\,.\,\{s\,r\,Sin(s\,Sin\,q\,r+q\,r)+s_1\,r_1\,Sin(s_1\,Sin\,q\,r_1+q\,r_1)+\dots\}+$

$+r_a\,Sin(s_a\,Sin\,q\,r_a+q\,r_a)+s_a\,r_a\,Cos(s_a\,Sin\,q\,r_a+q\,r_a)\,.\,Sin\,q\,r_a]$

(H, 116).

6) $$\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots} Sin\,(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots+r_ax)\frac{x^3\,dx}{(q^2-x^2)^2}=\frac{\pi}{4}e^{s\,Cos\,qr+s_1\,Cos\,qr_1+\dots}$$ $$[2\,Cos\,(s\,Sin\,qr+s_1Sin\,qr_1+\dots+qr_a)-q\,Cos\,qr_a.\{sr\,Sin\,(s\,Sin\,qr+qr)+$$ $$+s_1r_1\,Sin\,(s_1\,Sin\,qr_1+qr_1)+\dots\}-qr_a\,\{Sin\,(s_a\,Sin\,qr_a+qr_a)+$$ $$+s_a\,Cos\,(s_a\,Sin\,qr_a+qr_a).Sin\,qr_a\}]$$ (H, 116).

7) $$\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots} Cos\,(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots+r_ax)\frac{dx}{(q^2-x^2)^2}=\frac{\pi}{4q^3}e^{s\,Cos\,qr+s_1\,Cos\,qr_1+\dots}$$ $$[Sin\,(s\,Sin\,qr+s_1Sin\,qr_1+\dots+qr_a)-q\,Cos\,qr_a.\{sr\,Cos\,(s\,Sin\,qr+qr)+$$ $$+s_1r_1\,Cos\,(s_1\,Sin\,qr_1+qr_1)+\dots\}-qr_a\,\{Cos\,(s_a\,Sin\,qr_a+qr_a)-$$ $$-s_a\,Sin\,(s_a\,Sin\,qr_a+qr_a).Sin\,qr_a\}]$$ (H, 116).

8) $$\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots} Cos\,(s\,Sin\,rx+s_1Sin\,r_1x+\dots+r_ax)\frac{x^2\,dx}{(q^2-x^2)^2}=\frac{-\pi}{4q}e^{s\,Cos\,qr+s_1\,Cos\,qr_1+\dots}$$ $$[Sin\,(s\,Sin\,qr+s_1Sin\,qr_1+\dots+qr_a)+q\,Cos\,qr_a.\{sr\,Cos\,(s\,Sin\,qr+qr)+$$ $$+s_1r_1\,Cos\,(s_1\,Sin\,qr_1+qr_1)+\dots\}+qr_a\,\{Cos\,(s_a\,Sin\,qr_a+qr_a)-$$ $$-s_a\,Sin\,(s_a\,Sin\,qr_a+qr_a).Sin\,qr_a\}]$$ (H, 116).

9) $$\int e^{t\,Cos\,ux+\dots} Sin^s\,rx\dots Cos^n\,px\dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots)x-t\,Sin\,ux-\dots\right\}$$ $$\frac{x\,dx}{(q^2-x^2)^2}=\frac{-\pi}{4q}e^{t\,Cos\,qu+\dots}Sin^s\,qr\dots Cos^n\,pq\dots\Big[np\,Sec\,pq.Sin\{(n+1)pq\}+\dots+sr\,Cosec\,qr.$$ $$Sin\left\{(s-1)\frac{1}{2}\pi-(s+1)qr\right\}+\dots+tu\,Sin\,(t\,Sin\,qu+qu)+\dots\Big]$$ (H, 119).

10) $$\int e^{t\,Cos\,ux+\dots} Sin^s\,rx\dots Cos^n\,px\dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots)x-t\,Sin\,ux-\dots\right\}$$ $$\frac{x^3\,dx}{(q^2-x^2)^2}=\frac{\pi}{4}\Big[2^{-n-\dots-s-\dots}-e^{t\,Cos\,qu+\dots}Sin^s\,qr\dots Cos^n\,pq\dots Cos\Big\{(s+\dots)\frac{1}{2}\pi-$$ $$-(np+\dots+sr+\dots)q-t\,Sin\,qu-\dots\Big\}-q\,\Big\{np\,Sec\,pq.Sin\{(n+1)pq\}+\dots+sr\,Cosec\,qr.$$ $$Sin\left\{(s-1)\frac{1}{2}\pi-(s+1)qr\right\}+\dots+tu\,Sin\,(t\,Sin\,qu+qu)+\dots\Big\}\Big]$$ (H, 119).

11) $$\int e^{t\,Cos\,ux+\dots} Sin^s\,rx\dots Cos^n\,px\dots Cos\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots)x-t\,Sin\,ux-\dots\right\}$$ $$\frac{dx}{(q^2-x^2)^2}=\frac{-\pi}{4q^3}e^{t\,Cos\,qu+\dots}Sin^s\,qr\dots Cos^n\,pq\dots\Big[Sin\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots)q-\right.$$

$$-t\,Sin\,q\,u - \ldots\Big\} + q\Big\{np\,Sec\,pq\,.\,Cos\{(n+1)pq\} + \ldots + sr\,Cosec\,qr\,.\,Cos\Big\{(s-1)\frac{1}{2}\pi - (s+1)qr\Big\} + \ldots + tu\,Cos(t\,Sin\,qu + qu) + \ldots\Big\}\Big]$$ (H, 119).

12) $$\int e^{t\,Cos\,u\,x+\ldots}Sin^s rx\ldots Cos^n px\ldots Cos\Big\{(s+\ldots)\frac{1}{2}\pi - (np+\ldots+sr+\ldots)x - t\,Sin\,ux - \ldots\Big\}\frac{x^2\,dx}{(q^2-x^2)^2} = \frac{\pi}{4q}e^{t\,Cos\,q\,u+\ldots}Sin^s qr\ldots Cos^n pq\ldots\Big[Sin\Big\{(s+\ldots)\frac{1}{2}\pi - (np+\ldots+sr+\ldots)q - t\,Sin\,qu - \ldots\Big\} - q\Big\{np\,Sec\,pq\,.\,Cos\{(n+1)pq\} + \ldots + sr\,Cosec\,qr\,.\,Cos\Big\{(s-1)\frac{1}{2}\pi - (s+1)qr\Big\} + \ldots + tu\,Cos(t\,Sin\,qu + qu) + \ldots\Big\}\Big]$$ (H, 119).

13) $$\int e^{t\,Cos\,u\,x+\ldots}Sin^s rx\ldots Cos^n px\ldots Sin\Big\{(s+\ldots)\frac{1}{2}\pi - (np+\ldots+sr+\ldots+r_a)x - t\,Sin\,ux - \ldots\Big\}\frac{x\,dx}{(q^2-x^2)^2} = -\frac{\pi}{2q}e^{t\,Cos\,q\,u+\ldots}Sin^s qr\ldots Cos^n pq\ldots\Big\{Cos\,qr_a\,.\Big[np\,Sec\,pq\,.Sin\{(n+1)pq\} + \ldots + sr\,Cosec\,qr\,.\,Sin\Big\{(s-1)\frac{1}{2}\pi - (s+1)qr\Big\} + \ldots + tu\,Sin(t\,Sin\,qu + qu) + \ldots\Big] + r_a[Sin(t_a\,Sin\,qr_a + qr_a) + t_a\,Cos(t_a\,Sin\,qr_a + qr_a)\,.\,Sin\,qr_a]\Big\}$$ (H, 124).

14) $$\int e^{t\,Cos\,u\,x+\ldots}Sin^s rx\ldots Cos^n px\ldots Sin\Big\{(s+\ldots)\frac{1}{2}\pi - (np+\ldots+sr+\ldots+r_a)x - t\,Sin\,ux - \ldots\Big\}\frac{x^3\,dx}{(q^2-x^2)^2} = -\frac{\pi}{2}e^{t\,Cos\,q\,u+\ldots}Sin^s qr\ldots Cos^n pq\ldots\Big\{Cos\Big\{(s+\ldots)\frac{1}{2}\pi - (np+\ldots+sr+\ldots+r_a)q - t\,Sin\,qu - \ldots\Big\} + q\,Cos\,qr_a\,.\Big[np\,Sec\,pq\,.Sin\{(n+1)pq\} + \ldots + sr\,Cosec\,qr\,.\,Sin\Big\{(s-1)\frac{1}{2}\pi - (s+1)qr\Big\} + \ldots + tu\,Sin(t\,Sin\,qu + qu) + \ldots\Big] + qr_a\,.[Sin(t_a\,Sin\,qr_a + qr_a) + t_a\,Cos(t_a\,Sin\,qr_a + qr_a)\,.\,Sin\,qr_a]\Big\}$$ (H, 125).

15) $$\int e^{t\,Cos\,u\,x+\ldots}Sin^s rx\ldots Cos^n px\ldots Cos\Big\{(s+\ldots)\frac{1}{2}\pi - (np+\ldots+sr+\ldots+r_a)x - t\,Sin\,ux - \ldots\Big\}\frac{dx}{(q^2-x^2)^2} = \frac{-\pi}{4q^3}e^{t\,Cos\,q\,u+\ldots}Sin^s qr\ldots Cos^n pq\ldots\Big\{Sin\Big\{(s+\ldots)\frac{1}{2}\pi - (np+\ldots+sr+\ldots+r_a)q -$$

$$-t\,Sin\,qu-\ldots\Big\}+q\,Cos\,qr_a.\Big[np\,Sec\,pq.Cos\left\{(n+1)pq\right\}+\ldots+sr\,Cosec\,qr.Cos\Big\{(s-1)\frac{1}{2}\pi-$$
$$-(s+1)qr\Big\}+\ldots+tu\,Cos\,(Sin\,qu+qu)+\ldots\Big]+qr_a.\left[Cos\,(t_a\,Sin\,qr_a+qr_a)-\right.$$
$$\left.-t_a\,Sin\,(t_a\,Sin\,qr_a+qr_a).Sin\,qr_a\right]\Big\}\ \text{(H, 124).}$$

16) $$\int e^{t\,Cos\,ux+\ldots}Sin^s\,rx\ldots Cos^n\,px\ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+sr+\ldots+r_a)x-t\,Sin\,ux-\ldots\right\}$$
$$\frac{x^2\,dx}{(q^2-x^2)^2}=\frac{\pi}{4q}e^{t\,Cos\,qu+\ldots}Sin^s\,qr\ldots Cos^n\,pq\ldots\Big\{Sin\left\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+sr+\ldots+r_a)q-\right.$$
$$\left.-t\,Sin\,qu-\ldots\right\}-q\,Cos\,qr_a.\Big[np\,Sec\,pq.Cos\left\{(n+1)pq\right\}+\ldots+sr\,Cosec\,qr.Cos\Big\{(s-1)\frac{1}{2}\pi-$$
$$-(s+1)qr\Big\}+\ldots+tu\,Cos(t\,Sin\,qu+qu)+\ldots\Big]-qr_a.\left[Cos\,(t_a\,Sin\,qr_a+qr_a)-\right.$$
$$\left.-t_a\,Sin\,(t_a\,Sin\,qr_a+qr_a).Sin\,qr_a\right]\Big\}\ \text{(H, 124).}$$

1) $$\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\ldots}Sin\,(s\,Sin\,rx+s_1\,Sin\,r_1x+\ldots)\frac{dx}{x(q^2+x^2)}=\frac{\pi}{2q^2}\left(e^{s+s_1+\ldots}-\right.$$
$$\left.-e^{s\,e^{-qr}+s_1\,e^{-qr_1}+\ldots}\right)\ \text{(H, 153).}$$

2) $$\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\ldots}Sin\,(s\,Sin\,rx+s_1\,Sin\,r_1x+\ldots+px)\frac{dx}{x(q^2+x^2)}=\frac{\pi}{2q^2}\left(e^{s+s_1+\ldots}-\right.$$
$$\left.-e^{s\,e^{-qr}+s_1\,e^{-qr_1}+\ldots-pq}\right)\ \text{(H, 155).}$$

3) $$\int e^{t\,Cos\,ux+\ldots}Sin^s\,rx\ldots Cos^n\,px\ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+sr+\ldots)x-t\,Sin\,ux-\ldots\right\}$$
$$\frac{dx}{x(q^2+x^2)}=\frac{\pi}{2^{1+n+\ldots+s+\ldots}q^2}(1+e^{-2pq})^n\ldots(1-e^{-2qr})^s\ldots e^{t\,e^{-qu}+\ldots}\ \text{(H, 157).}$$

4) $$\int e^{t\,Cos\,ux+\ldots}Sin^s\,rx\ldots Cos^n\,px\ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+sr+\ldots+w)x-t\,Sin\,ux-\ldots\right\}$$
$$\frac{dx}{x(q^2+x^2)}=\frac{\pi}{2^{1+n+\ldots+s+\ldots}q^2}(1+e^{-2pq})^n\ldots(1-e^{-2qr})^s\ldots e^{t\,e^{-qu}+\ldots-qw}\ \text{(H, 162).}$$

5) $\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots}\,Sin\,(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots)\frac{dx}{x(q^2-x^2)}=\frac{\pi}{2q^2}\{e^{s+s_1+\dots}-$

$-e^{s\,Cos\,qr+s_1\,Cos\,qr_1+\dots}\,Cos\,(s\,Sin\,qr+s_1\,Sin\,qr_1+\dots)\}$ (H, 153).

6) $\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots}\,Sin\,(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots+px)\frac{dx}{x(q^2-x^2)}=\frac{\pi}{2q^2}\{e^{s+s_1+\dots}-$

$-e^{s\,Cos\,qr+s_1\,Cos\,qr_1+\dots}\,Cos\,(s\,Sin\,qr+s_1\,Sin\,qr_1+\dots+pq)\}$ (H, 155).

7) $\int e^{t\,Cos\,ux+\dots}\,Sin^s\,rx\dots Cos^n\,px\dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots)x-t\,Sin\,ux-\dots\right\}$

$\frac{dx}{x(q^2-x^2)}=\frac{\pi}{2q^2}e^{t\,Cos\,qu+\dots}\,Sin^s\,qr\dots Cos^n\,pq\dots Cos\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots)q-\right.$

$\left.-t\,Sin\,qu-\dots\right\}$ (H, 157).

8) $\int e^{t\,Cos\,ux+\dots}\,Sin^s\,rx\dots Cos^n\,px\dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots+w)x-t\,Sin\,ux-\dots\right\}$

$\frac{dx}{x(q^2-x^2)}=\frac{\pi}{2q^2}e^{t\,Cos\,qu+\dots}\,Sin^s\,qr\dots Cos^n\,pq\dots Cos\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots+w)q-\right.$

$\left.-t\,Sin\,qu-\dots\right\}$ (H, 162).

9) $\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots}\,Sin\,(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots)\frac{dx}{x(4q^4+x^4)}=\frac{\pi}{8q^4}\{e^{s+s_1+\dots}-$

$-e^{s\,e^{-qr}\,Cos\,qr+s_1\,e^{-qr_1}\,Cos\,qr_1+\dots}\,Cos\,(s\,e^{-qr}\,Sin\,qr+s_1\,e^{-qr_1}\,Sin\,qr_1+\dots)\}$ (H, 153).

10) $\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots}\,Sin\,(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots+px)\frac{dx}{x(4q^4+x^4)}=\frac{\pi}{8q^4}\{e^{s+s_1+\dots}-$

$-e^{s\,e^{-qr}\,Cos\,qr+s_1\,e^{-qr_1}\,Cos\,qr_1+\dots-pq}\,Cos\,(s\,e^{-qr}\,Sin\,qr+s_1\,e^{-qr_1}\,Sin\,qr_1+\dots+pq)\}$

(H, 155).

11) $\int e^{t\,Cos\,ux+\dots}\,Sin^s\,rx\dots Cos^n\,px\dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots)x-t\,Sin\,ux-\dots\right\}$

$\frac{dx}{x(4q^4+x^4)}=\frac{\pi}{2^{3+n+\dots+s+\dots}q^4}(1+e^{-2pq}\,Cos\,2pq+e^{-4pq})^{\frac{1}{2}n}\dots(1-e^{-2qr}\,Cos\,2qr+$

$+e^{-4qr})^{\frac{1}{2}s}\dots e^{t\,e^{-qu}\,Cos\,qu+\dots}\,Cos\left\{n\,Arctg\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}+\dots-s\,Arctg\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}-\dots+\right.$

$\left.+t\,e^{-qu}\,Sin\,qu+\dots\right\}$ (H, 157).

12) $\int e^{t\,Cos\,u x+\dots} Sin^s r x \dots Cos^n p x \dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots+w)x-t\,Sin\,u x-\dots\right\}$
$\frac{dx}{x(4q^4+x^4)}=\frac{\pi}{2^{3+n+\dots+s+\dots}q^4}(1+e^{-2pq}Cos\,2pq+e^{-4pq})^{\frac{1}{2}n}\dots(1-e^{-2qr}Cos\,2qr+$
$+e^{-4qr})^{\frac{1}{2}s}\dots e^{te^{-qu}Cos\,qu+\dots-qw}Cos\left\{n\,Arctg\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}+\dots-s\,Arctg\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}-\dots+\right.$
$\left.+te^{-qu}Sin\,qu+\dots-qw\right\}$ (H, 162).

13) $\int e^{s\,Cos\,rx+s_1Cos\,r_1x+\dots}Sin(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots)\frac{dx}{x(q^4-x^4)}=\frac{\pi}{4q^4}\{2e^{s+s_1+\dots}-$
$-e^{se^{-qr}+s_1e^{-qr_1}+\dots}-e^{s\,Cos\,qr+s_1Cos\,qr_1+\dots}Cos(s\,Sin\,qr+s_1\,Sin\,qr_1+\dots)\}$ (H, 153).

14) $\int e^{s\,Cos\,rx+s_1Cos\,r_1x+\dots}Sin(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots+px)\frac{dx}{x(q^4-x^4)}=\frac{\pi}{4q^4}\{2e^{s+s_1+\dots}-$
$-e^{se^{-qr}+s_1e^{-qr_1}+\dots-pq}-e^{s\,Cos\,qr+s_1Cos\,qr_1+\dots}Cos(s\,Sin\,qr+s_1\,Sin\,qr_1+\dots+pq)\}$
(H, 155).

15) $\int e^{t\,Cos\,ux+\dots}Sin^s rx\dots Cos^n px\dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots)x-t\,Sin\,ux-\dots\right\}$
$\frac{dx}{x(q^4-x^4)}=\frac{\pi}{4q^4}\left[2^{-n-\dots-s-\dots}(1+e^{-2pq})^n\dots(1-e^{-2qr})^s\dots e^{te^{-qu}+\dots}+e^{t\,Cos\,qu+\dots}\right.$
$\left.Sin^s qr\dots Cos^n pq\dots Cos\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots)q-t\,Sin\,qu-\dots\right\}\right]$ (H, 157).

16) $\int e^{t\,Cos\,ux+\dots}Sin^s rx\dots Cos^n px\dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots+w)x-t\,Sin\,ux-\dots\right\}$
$\frac{dx}{x(q^4-x^4)}=\frac{\pi}{4q^4}\left[2^{-n-\dots-s-\dots}(1+e^{-2pq})^n\dots(1-e^{-2qr})^s\dots e^{te^{-qu}+\dots-qw}+e^{t\,Cos\,qu+\dots}\right.$
$\left.Sin^s qr\dots Cos^n pq\dots Cos\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots+w)q-t\,Sin\,qu-\dots\right\}\right]$ (H, 162).

F. Alg. rat. fract.;
Exponentielle;
Circulaire Directe.
Autre forme. TABLE 386. Lim. 0 et ∞.

1) $\int e^{-p\sqrt{x}}Cos(p\sqrt{x})\frac{dx}{q^2+x^2}=\frac{\pi}{2q}e^{-p\sqrt{2q}}$

2) $\int e^{-p\sqrt{x}}Cos(p\sqrt{x})\frac{dx}{q^2-x^2}=\frac{\pi}{2q}e^{-p\sqrt{q}}Sin(p\sqrt{q})$

3) $\int e^{-p\sqrt{x}}\, Cos\,(p\sqrt{x})\,\frac{dx}{q^4+x^4} = \frac{\pi}{2q^3\sqrt{2}}\, e^{-p\sqrt{q}\cdot\sqrt{\frac{2+\sqrt{2}}{2}}}\left\{Sin\left(p\sqrt{q}\cdot\sqrt{\frac{2-\sqrt{2}}{2}}\right)+\right.$

$\left.+\,Cos\left(p\sqrt{q}\cdot\sqrt{\frac{2-\sqrt{2}}{2}}\right)\right\}$

4) $\int \frac{(r+\sqrt{\frac{1}{2}x})\,Cos\,(p\sqrt{\frac{1}{2}x})-\sqrt{\frac{1}{2}x}\,.\,Sin\,(p\sqrt{\frac{1}{2}x})}{x+r\sqrt{2x}+r^2}\;\frac{e^{-p\sqrt{\frac{1}{2}x}}}{q^2+x^2}\,dx = \frac{\pi}{2q}\,\frac{e^{-p\sqrt{q}}}{r+\sqrt{q}}$

5) $\int \frac{(r+\sqrt{\frac{1}{2}x})\,Cos\,(p\sqrt{\frac{1}{2}x})-\sqrt{\frac{1}{2}x}\,.\,Sin\,(p\sqrt{\frac{1}{2}x})}{x+r\sqrt{2x}+r^2}\;\frac{e^{-p\sqrt{\frac{1}{2}x}}}{q^2-x^2}\,dx =$

$= \frac{\pi}{q}\, e^{-p\sqrt{\frac{1}{2}q}}\,\frac{(r+\sqrt{\frac{1}{2}q})\,Sin\,(p\sqrt{\frac{1}{2}q})-\sqrt{\frac{1}{2}q}\,.\,Cos\,(p\sqrt{\frac{1}{2}q})}{q+r\sqrt{2q}+r^2}$

Sur 1) à 5) voyez Russell, C. & D. M. J. 8, 156.

6) $\int e^{-px}\, Cos\,px\,\frac{x\,dx}{q^4+x^4} = \frac{\pi}{4q^2}\, e^{-pq\sqrt{2}}$ V. T. 386, N. 1.

7) $\int e^{-px}\, Cos\,px\,\frac{x\,dx}{q^4-x^4} = \frac{\pi}{2q^2}\, e^{-pq}\, Sin\,pq$ V. T. 386, N. 2.

8) $\int e^{-px}\, Cos\,px\,\frac{x\,dx}{q^8+x^8} = \frac{\pi}{4q^6\sqrt{2}}\, e^{-pq\sqrt{\frac{2+\sqrt{2}}{2}}}\left\{Sin\left(pq\sqrt{\frac{2-\sqrt{2}}{2}}\right)+Cos\left(pq\sqrt{\frac{2-\sqrt{2}}{2}}\right)\right\}$

V. T. 386, N. 3.

9) $\int \frac{(r+x)\,Cos\,px - x\,Sin\,px}{2x^2+2rx+r^2}\;\frac{xe^{-px}}{q^4+x^4}\,dx = \frac{\pi}{2q^2}\,\frac{e^{-2pq}}{r+2q}$ V. T. 386, N. 4.

10) $\int \frac{(r+x)\,Cos\,px - x\,Sin\,px}{2x^2+2rx+r^2}\;\frac{xe^{-px}}{q^4-x^4}\,dx = \frac{\pi}{q^2}\, e^{-pq}\,\frac{(q+r)\,Sin\,pq - q\,Cos\,pq}{2q^2+2qr+r^2}$ V. T. 386, N. 5.

F. Alg. rat. fract. monôme; Expon. en dén. binôme; Circul. Dir. au numér. — TABLE 387. — Lim. 0 et ∞.

1) $\int \frac{Sin\,px}{e^{qx}+e^{-qx}}\,\frac{dx}{x} = Arctg\left(e^{\frac{p\pi}{2q}}\right)$ V. T. 264, N. 14.

2) $\int \frac{Cos\,px}{e^{qx}-e^{-qx}}\,\frac{dx}{x} = -\frac{1}{2}\, l\left(e^{\frac{p\pi}{2q}}+e^{-\frac{p\pi}{2q}}\right)$ V. T. 264, N. 6.

3) $\int \frac{Sin\,px}{1-e^{x}}\,\frac{dx}{x} = -\sum_0^\infty Arctg\left(\frac{p}{n}\right)$ V. T. 264, N. 13.

4) $\int \frac{Cos\,px}{1-e^{-x}}\,\frac{dx}{x} = -\frac{1}{2}\sum_0^\infty l(n^2+p^2)$ V. T. 264, N. 5.

5) $\int \frac{Sin^2 qx}{1-e^x} \frac{dx}{x} = \frac{1}{4} l \frac{4q\pi}{e^{2q\pi}-e^{-2q\pi}}$ 6) $\int \frac{e^{px}-e^{-px}}{e^x-e^{-x}} \frac{Sin\, qx}{x} dx = Arctg\left(\frac{e^{q\pi}-1}{e^{q\pi}+1} Tg \frac{1}{2} p\pi\right)$

7) $\int \frac{e^{px}+e^{-px}}{e^x-e^{-x}} \frac{Sin^2 qx}{x} dx = \frac{1}{4} l \frac{e^{2q\pi}+2\, Cos\, p\pi + e^{-2q\pi}}{2(1+Cos\, p\pi)}$

Sur 5) à 7) voyez Winckler, Sitz. Ber. Wien. 21, 389.

8) $\int \frac{e^{qx}-e^{-qx}}{e^{qx}+e^{-qx}} \frac{Cos\, px}{x} dx = l \frac{1+e^{-\frac{p\pi}{2q}}}{1-e^{-\frac{p\pi}{2q}}}$ V. T. 265, N. 1.

9) $\int \frac{e^{qx}+e^{-qx}}{e^{qx}-e^{-qx}} \frac{Cos\, px}{x} dx = -l\left(e^{\frac{p\pi}{2q}} - e^{-\frac{p\pi}{2q}}\right)$ V. T. 265, N. 3.

10) $\int \frac{1-Cos\, px}{e^{2\pi x}-1} \frac{dx}{x} = \frac{1}{4}p + \frac{1}{2} l \frac{1-e^{-p}}{p}$ Schlömilch, Schl. Z. 6, 407.

F. Alg. rat. fract. binôme;
Expon. en dén. bin. $e^x + e^{-x}$; TABLE 388. Lim. 0 et ∞.
Circul. Dir. au numér.

1) $\int \frac{Sin\, qx}{e^{\frac{1}{2}\pi x}+e^{-\frac{1}{2}\pi x}} \frac{x\, dx}{1+x^2} = \frac{\pi}{2\sqrt{2}} e^{-q} + \frac{e^q-e^{-q}}{4\sqrt{2}} l \frac{e^q+\sqrt{2}+e^{-q}}{e^q-\sqrt{2}+e^{-q}} - \frac{e^q+e^{-q}}{2\sqrt{2}} Arctg\left(\frac{\sqrt{2}}{e^q-e^{-q}}\right)$

V. T. 389, N. 8.

2) $\int \frac{Sin\, qx}{e^{\frac{1}{2}\pi x}+e^{-\frac{1}{2}\pi x}} \frac{x\, dx}{1+x^2} = \frac{1}{2} q e^{-q} - \frac{e^q-e^{-q}}{4} l(1+e^{-2q})$ V. T. 389, N. 10.

3) $\int \frac{e^{\frac{1}{2}\pi x}-e^{-\frac{1}{2}\pi x}}{e^{\frac{1}{2}\pi x}+e^{-\frac{1}{2}\pi x}} \frac{Sin\, qx}{1+x^2} dx = q e^{-q} - \frac{e^q-e^{-q}}{2} l(1-e^{-2q})$ V. T. 389, N. 9.

4) $\int \frac{e^{\frac{1}{2}\pi x}-1}{e^{\frac{1}{2}\pi x}+1} \frac{Sin\, qx}{1+x^2} dx = -\frac{\pi}{2} e^q + \frac{e^q-e^{-q}}{2} l \frac{e^q+1}{e^q-1} + (e^q+e^{-q}) Arctg(e^q)$ V. T. 388, N. 8.

5) $\int \frac{Cos\, qx}{e^{\frac{1}{2}\pi x}+e^{-\frac{1}{2}\pi x}} \frac{dx}{1+x^2} = \frac{\pi}{2\sqrt{2}} e^{-q} - \frac{e^q+e^{-q}}{4\sqrt{2}} l \frac{e^q+\sqrt{2}+e^{-q}}{e^q-\sqrt{2}+e^{-q}} + \frac{e^q-e^{-q}}{2\sqrt{2}} Arctg\left(\frac{\sqrt{2}}{e^q-e^{-q}}\right)$

V. T. 389, N. 18.

6) $\int \frac{Cos\, qx}{e^{\frac{1}{2}\pi x}+e^{-\frac{1}{2}\pi x}} \frac{dx}{1+x^2} = \frac{1}{2} q e^{-q} + \frac{e^q+e^{-q}}{4} l(1+e^{-2q})$ V. T. 389, N. 20.

7) $\int \frac{e^{\frac{1}{2}\pi x}-e^{-\frac{1}{2}\pi x}}{e^{\frac{1}{2}\pi x}+e^{-\frac{1}{2}\pi x}} \frac{x\, Cos\, qx}{1+x^2} dx = -q e^{-q} - \frac{e^q-e^{-q}}{2} l(1-e^{-2q})$ V. T. 389, N. 19.

8) $\int \frac{e^{\frac{1}{2}\pi x}-1}{e^{\frac{1}{2}\pi x}+1} \frac{x\, Cos\, qx}{1+x^2} dx = -\frac{\pi}{2} e^q + \frac{e^q+e^{-q}}{2} l \frac{e^q+1}{e^q-1} + (e^q-e^{-q}) Arctg(e^q)$ V. T. 389, N. 17.

1) $\int \frac{Sin\, qx}{e^{\frac{1}{2}\pi x} - e^{-\frac{1}{2}\pi x}} \frac{dx}{1+x^2} = -\frac{e^{-q}}{2\sqrt{2}} + \frac{e^q - e^{-q}}{4\sqrt{2}} l \frac{e^q + \sqrt{2} + e^{-q}}{e^q - \sqrt{2} + e^{-q}} + \frac{e^q + e^{-q}}{2\sqrt{2}} Arctg\left(\frac{\sqrt{2}}{e^q - e^{-q}}\right)$ (IV, 510).

2) $\int \frac{Sin\, qx}{e^{\frac{1}{2}\pi x} - e^{-\frac{1}{2}\pi x}} \frac{dx}{1+x^2} = \frac{e^q + e^{-q}}{2} Arctg(e^{-q}) - \frac{\pi}{4} e^{-q}$ (IV, 510).

3) $\int \frac{e^{\frac{1}{2}\pi x} + 1}{e^{\frac{1}{2}\pi x} - 1} \frac{Sin\, qx}{1+x^2} dx = -\frac{\pi}{2} e^{-q} + \frac{e^q - e^{-q}}{2} l \frac{e^q + 1}{e^q - 1} + (e^q + e^{-q}) Arctg(e^{-q})$ (IV, 510).

4) $\int \frac{Sin\, qx}{e^{\pi x} - e^{-\pi x}} \frac{dx}{1+x^2} = -\frac{q}{4} e^{-q} + \frac{e^q - e^{-q}}{4} l(1 + e^{-q})$ V. T. 389, N. 9.

5) $\int \frac{e^{\pi x} + e^{-\pi x}}{e^{\pi x} - e^{-\pi x}} \frac{Sin\, qx}{1+x^2} dx = \frac{q}{2} e^{-q} + \frac{e^q - e^{-q}}{2} l(1 - e^{-q})$ V. T. 389, N. 9.

6) $\int \frac{e^{\pi x} + 1}{e^{\pi x} - 1} \frac{Sin\, qx}{1+x^2} dx = \frac{e^q - e^{-q}}{2} l \frac{e^q + 1}{e^q - 1}$ (IV, 510).

7) $\int \frac{e^{px} + e^{-px}}{e^{\frac{1}{2}\pi x} - e^{-\frac{1}{2}\pi x}} \frac{Sin\, qx}{1+x^2} dx = -\frac{\pi}{2} e^{-q} Cos\, p + \frac{e^q - e^{-q}}{4} Sin\, p . l \frac{e^q + 2 Sin\, p + e^{-q}}{e^q - 2 Sin\, p + e^{-q}} +$
$+ \frac{e^q + e^{-q}}{2} Cos\, p . Arctg\left(\frac{2 Cos\, p}{e^q - e^{-q}}\right) \left[p^2 \leqq \frac{1}{4}\pi^2\right]$ (IV, 510).

8) $\int \frac{e^{px} - e^{-px}}{e^{\frac{1}{2}\pi x} - e^{-\frac{1}{2}\pi x}} \frac{x\, Sin\, qx}{1+x^2} dx = \frac{\pi}{2} e^{-q} Sin\, p + \frac{e^q - e^{-q}}{4} Cos\, p . l \frac{e^q + 2 Sin\, p + e^{-q}}{e^q - 2 Sin\, p + e^{-q}} -$
$- \frac{e^q + e^{-q}}{2} Sin\, p . Arctg\left(\frac{2 Cos\, p}{e^q - e^{-q}}\right) \left[p^2 < \frac{1}{4}\pi^2\right]$ V. T. 389, N. 18.

9) $\int \frac{e^{px} + e^{-px}}{e^{\pi x} - e^{-\pi x}} \frac{Sin\, qx}{1+x^2} dx = -\frac{1}{2} e^{-q}(q\, Cos\, p + p\, Sin\, p) + \frac{e^q - e^{-q}}{4} Cos\, p . l(1 + 2e^{-q} Cos\, p + e^{-2q}) +$
$+ \frac{e^q + e^{-q}}{2} Sin\, p . Arctg\left(\frac{Sin\, p}{e^q + Cos\, p}\right) [p^2 \leqq \pi^2]$ (IV, 511).

10) $\int \frac{e^{px} - e^{-px}}{e^{\pi x} - e^{-\pi x}} \frac{x\, Sin\, px}{1+x^2} dx = \frac{1}{2} e^{-q}(q\, Sin\, p - p\, Cos\, p) - \frac{e^q - e^{-q}}{4} Sin\, p . l(1 + 2e^{-q} Cos\, p + e^{-2q}) +$
$+ \frac{e^q + e^{-q}}{2} Cos\, p . Arctg\left(\frac{Sin\, p}{e^q + Cos\, p}\right) [p^2 < \pi^2]$ V. T. 389, N. 20.

11) $\int \frac{Cos\, qx}{e^{\frac{1}{2}\pi x} - e^{-\frac{1}{2}\pi x}} \frac{x\, dx}{1+x^2} = \frac{e^q - e^{-q}}{2} Arctg(e^{-q}) + \frac{\pi}{4} e^{-q} - \frac{1}{2}$ V. T. 389, N. 17.

12) $\int \frac{e^{\frac{1}{2}\pi x} + e^{-\frac{1}{2}\pi x}}{e^{\frac{1}{2}\pi x} - e^{-\frac{1}{2}\pi x}} \frac{x\, Cos\, qx}{1+x^2} dx = -1 + \frac{e^q + e^{-q}}{2} l \frac{1 + e^{-q}}{1 - e^{-q}}$ V. T. 389, N. 19.

13) $\int \frac{e^{\frac{1}{2}\pi x} + 1}{e^{\frac{1}{2}\pi x} - 1} \frac{x\, Cos\, qx}{1+x^2} dx = -2 + \frac{\pi}{2} e^{-q} + \frac{e^q + e^{-q}}{2} l \frac{e^q + 1}{e^q - 1} + (e^q - e^{-q}) Arctg(e^{-q})$

V. T. 389, N. 17.

14) $\int \frac{Cos\, qx}{e^{\pi x} - e^{-\pi x}} \, \frac{x\, dx}{1+x^2} = -\frac{1}{4} + \frac{1}{4} q e^{-q} + \frac{e^q + e^{-q}}{4} \, l(1+e^{-q})$ V. T. 389, N. 21.

15) $\int \frac{e^{\pi x} + e^{-\pi x}}{e^{\pi x} - e^{-\pi x}} \, \frac{x\, Cos\, qx}{1+x^2} dx = -\frac{1}{2} - \frac{q}{2} e^{-q} - \frac{e^q + e^{-q}}{2} \, l(1-e^{-q})$ V. T. 389, N 21.

16) $\int \frac{e^{\pi x} + 1}{e^{\pi x} - 1} \, \frac{x\, Cos\, qx}{1+x^2} dx = -1 + \frac{e^q + e^{-q}}{2} \, l \frac{e^q + 1}{e^q - 1}$ V. T. 389, N. 17.

17) $\int \frac{e^{px} + e^{-px}}{e^{\frac{1}{2}\pi x} - e^{-\frac{1}{2}\pi x}} \, \frac{x\, Cos\, qx}{1+x^2} dx = -1 + \frac{\pi}{2} e^{-q} \, Cos\, p + \frac{e^q + e^{-q}}{4} \, Sin\, p \, . \, l \frac{e^q + 2\, Sin\, p + e^{-q}}{e^q - 2\, Sin\, p + e^{-q}} +$
$+ \frac{e^q - e^{-q}}{2} \, Cos\, p \, . \, Arctg\left(\frac{2\, Cos\, p}{e^q - e^{-q}}\right) \left[p^2 \leqq \frac{1}{4}\pi^2\right]$ (IV, 512).

18) $\int \frac{e^{px} - e^{-px}}{e^{\frac{1}{2}\pi x} - e^{-\frac{1}{2}\pi x}} \, \frac{Cos\, qx}{1+x^2} dx = \frac{\pi}{2} e^{-q} \, Sin\, p - \frac{e^q + e^{-q}}{4} \, Cos\, p \, . \, l \frac{e^q + 2\, Sin\, p + e^{-q}}{e^q - 2\, Sin\, p + e^{-q}} +$
$+ \frac{e^q - e^{-q}}{2} \, Sin\, p \, . \, Arctg\left(\frac{2\, Cos\, p}{e^q - e^{-q}}\right) \left[p^2 < \frac{1}{4}\pi^2\right]$ (IV, 512).

19) $\int \frac{e^{px} + e^{-px}}{e^{\pi x} - e^{-\pi x}} \, \frac{x\, Cos\, qx}{1+x^2} dx = \frac{1}{2} e^{-q}(q\, Cos\, p + p\, Sin\, p) - \frac{1}{2} + \frac{e^q + e^{-q}}{4} \, Cos\, p \, . \, l(1 + 2 e^{-q} \, Cos\, p + e^{-2q}) +$
$+ \frac{e^q - e^{-q}}{2} \, Sin\, p \, . \, Arctg\left(\frac{Sin\, p}{e^q + Cos\, p}\right) [p^2 \leqq \pi^2]$ V. T. 389, N. 9.

20) $\int \frac{e^{px} - e^{-px}}{e^{\pi x} - e^{-\pi x}} \, \frac{Cos\, qx}{1+x^2} dx = \frac{1}{2} e^{-q}(q\, Sin\, p - p\, Cos\, p) + \frac{e^q + e^{-q}}{4} \, Sin\, p \, . \, l(1 + 2 e^{-q} \, Cos\, p + e^{-2q}) -$
$- \frac{e^q - e^{-q}}{2} \, Cos\, p \, . \, Arctg\left(\frac{Sin\, p}{e^q + Cos\, p}\right) [p^2 < \pi^2]$ (IV, 512).

21) $\int \frac{e^{px} + e^{-px}}{e^{\pi x} - e^{-\pi x}} \, \frac{Sin\, qx}{r^2 + x^2} dx = \frac{1}{2r^2} - \frac{\pi}{2r} \, \frac{e^{-qr} \, Cos\, pr}{Sin\, r\pi} + \sum_1^\infty (-1)^{n-1} \frac{e^{-nq} \, Cos\, np}{n^2 - r^2} \, [0 \leqq p \leqq \pi]$
(IV, 512).

22) $\int \frac{e^{px} - e^{-px}}{e^{\pi x} - e^{-\pi x}} \, \frac{Cos\, qx}{r^2 + x^2} dx = \frac{\pi}{2r} \, \frac{e^{-qr} \, Sin\, pr}{Sin\, r\pi} + \sum_1^\infty (-1)^n \frac{e^{-nq} \, Sin\, np}{n^2 - r^2} \, [0 < p < \pi]$ (IV, 512).

23) $\int \frac{e^{px} - e^{-px}}{e^{\pi x} - e^{-\pi x}} \, \frac{x\, Sin\, qx}{r^2 + x^2} dx = \frac{\pi}{2} \, \frac{e^{-qr} \, Sin\, pr}{Sin\, r\pi} + \sum_1^\infty (-1)^n \frac{n e^{-nq} \, Sin\, np}{n^2 - r^2} \, [0 < p < \pi]$
V. T. 389, N. 22.

24) $\int \frac{e^{px} + e^{-px}}{e^{\pi x} - e^{-\pi x}} \, \frac{x\, Cos\, qx}{r^2 + x^2} dx = \frac{\pi}{2} \, \frac{e^{-qr} \, Cos\, pr}{Sin\, r\pi} + \sum_1^\infty (-1)^n \frac{n e^{-nq} \, Cos\, np}{n^2 - r^2} \, [0 \leqq p \leqq \pi]$
V. T. 389, N. 21.

F. Alg. rat. fract. binôme; Exp. en dén. polynôme; Circulaire Directe.	Autre forme. TABLE 390.	Lim. 0 et ∞.

1) $\int \frac{Sin\, x}{e^{qx}+2\, Cos\, x+e^{-qx}} \frac{x\,dx}{x^2-\pi^2} = \frac{1}{2} Arctg\left(\frac{1}{q}\right) - \frac{1}{2q}$ (IV, 512).

2) $\int \frac{Sin\, x}{e^{qx}-2\, Cos\, x+e^{-qx}} \frac{x\,dx}{x^2-\pi^2} = \frac{1}{2} \frac{q}{1+q^2} - \frac{1}{2} Arctg\left(\frac{1}{q}\right)$ (IV, 512).

3) $\int \frac{e^{qx}+e^{-qx}}{e^{2qx}-2\, Cos\, 2x+e^{-2qx}} \frac{x\, Sin\, x}{x^2-\pi^2} dx = \frac{1}{2q} \frac{1}{1+q^2}$ V. T. 390, N. 1, 2.

4) $\int \frac{Sin\, 2x}{e^{2qx}-2\, Cos\, 2x+e^{-2qx}} \frac{x\,dx}{x^2-\pi^2} = \frac{1}{4q} \frac{1+2q^2}{1+q^2} - \frac{1}{2} Arctg\left(\frac{1}{q}\right)$ V. T. 390, N. 1, 2.

5) $\int \frac{e^{\pi x}+e^{-\pi x}}{e^{\pi x}-e^{-\pi x}} \frac{Cos\, qx}{1+x^2} \frac{dx}{x} = \frac{1}{2} \frac{1-q+qe^{-q}}{1-e^{-q}} + \frac{1}{2}\left(e^{\frac{1}{2}q}-e^{-\frac{1}{2}q}\right)^2 l(1-e^{-q})$

V. T. 387, N. 9 et T. 389, N. 15.

6) $\int \frac{Cos\, qx - e^{-qx}}{x^4+r^4} \frac{dx}{x} = \frac{\pi}{2r^4} e^{-\frac{1}{2}qr\sqrt{2}} Sin\left(\frac{1}{2} qr\sqrt{2}\right)$ (IV, 512).

F. Alg. rat. fract.; Exponentielle; Circ. Dir. au dén. monôme.	TABLE 391.	Lim. 0 et ∞.

1) $\int e^{-Tg^2 x} \frac{Sin\, x}{Cos^2 x} \frac{dx}{x} = \frac{1}{2}\sqrt{\pi}$ (VIII, 414).

2) $\int e^{-Tg^2 x} \frac{Sin\, x}{Cos^3 x} \frac{dx}{x} = \frac{1}{2}\sqrt{\pi}$ (VIII, 414).

3) $\int e^{-Tg^2 2x} \frac{Tg\, x}{Cos^2 2x} \frac{dx}{x} = \frac{1}{2}\sqrt{\pi}$ (VIII, 414).

4) $\int \frac{e^{s\, Cos\, rx} Sin\, (s\, Sin\, rx)}{Sin\, rx} \frac{dx}{q^2+x^2} = \frac{\pi}{q(e^{qr}-e^{-qr})}\left(e^s - e^{se^{-qr}}\right)$ (H, 154).

5) $\int \frac{1-e^{s\, Cos\, rx} Cos\, (s\, Sin\, rx)}{Sin\, rx} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{e^{qr}-e^{-qr}}\left(e^s - e^{se^{-qr}}\right)$ (H, 154).

6) $\int e^{s\, Cos\, rx} \frac{Sin\, (s\, Sin\, rx + rx)}{Sin\, rx} \frac{dx}{q^2+x^2} = \frac{\pi}{q(e^{qr}-e^{-qr})}\left(e^s - e^{se^{-qr}-qr}\right)$ (H, 156).

7) $\int e^{s\, Cos\, rx} \frac{Cos\, (s\, Sin\, rx + rx)}{Sin\, rx} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{e^{qr}-e^{-qr}}\left(e^s - e^{se^{-qr}-qr}\right)$ (H, 155).

8) $\int e^{t\, Cos\, 2rx} Cos^{s-1} rx \frac{Sin\, (srx + t\, Sin\, 2rx)}{Sin\, rx} \frac{dx}{q^2+x^2} = \frac{2^{1-s}\pi}{(e^{2qr}-e^{-2qr})q} \left\{2^s e^t - \right.$

$\left. -(1+e^{-2qr})^s e^{te^{-2qr}}\right\}$ (H, 158).

9) $\int \frac{1-e^{t\,Cos\,2rx}\,Cos^s\,rx\,.\,Cos(srx+t\,Sin\,2rx)}{Sin\,2rx}\,\frac{x\,dx}{q^2+x^2}=\frac{2^{-s}\pi}{e^{2qr}-e^{-2qr}}\left\{2^s e^t-\right.$

$\left.-(1+e^{-2qr})^s\,e^{t\,e^{-2qr}}\right\}$ (H, 158).

10) $\int e^{t\,Cos\,2rx}\,Cos^{s-1}\,rx\,\frac{Sin\,\{(s+2)rx+t\,Sin\,2rx\}}{Sin\,rx}\,\frac{dx}{q^2+x^2}=\frac{2^{1-s}\pi}{(e^{2qr}-e^{-2qr})q}\left\{2^s e^t-\right.$

$\left.-(1+e^{-2qr})^s\,e^{t\,e^{-2qr}-2qr}\right\}$ (H, 164).

11) $\int e^{t\,Cos\,2rx}\,Cos^{s-1}\,rx\,\frac{Cos\,\{(s+2)rx+t\,Sin\,2rx\}}{Sin\,rx}\,\frac{x\,dx}{q^2+x^2}=\frac{2^{1-s}\pi}{e^{2qr}+e^{-2qr}}\left\{2^s e^t-\right.$

$\left.-(1+e^{-2qr})^s\,e^{t\,e^{-2qr}-2qr}\right\}$ (H, 164).

12) $\int e^{s\,Cos\,rx}\,\frac{Sin\,(s\,Sin\,rx)}{Sin\,rx}\,\frac{dx}{q^2-x^2}=\frac{\pi}{2q\,Sin\,qr}\left\{e^s-e^{s\,Cos\,qr}\,Cos\,(s\,Sin\,qr)\right\}$ (H, 154).

13) $\int \frac{1-e^{s\,Cos\,rx}\,Cos\,(s\,Sin\,rx)}{Sin\,rx}\,\frac{x\,dx}{q^2-x^2}=-\frac{\pi}{2}\,e^{s\,Cos\,qr}\,\frac{Sin\,(s\,Sin\,qr)}{Sin\,qr}$ (H, 154).

14) $\int e^{s\,Cos\,rx}\,\frac{Sin\,(s\,Sin\,rx+rx)}{Sin\,rx}\,\frac{dx}{q^2-x^2}=\frac{\pi}{2q\,Sin\,qr}\left\{e^s-e^{s\,Cos\,qr}\,Cos(s\,Sin\,qr+qr)\right\}$ (H, 156).

15) $\int e^{s\,Cos\,rx}\,\frac{Cos\,(s\,Sin\,rx+rx)}{Sin\,rx}\,\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\,e^{s\,Cos\,qr}\,\frac{Sin(s\,Sin\,qr+qr)}{Sin\,qr}$ (H, 156).

16) $\int e^{t\,Cos\,2rx}\,Cos^{s-1}\,rx\,\frac{Sin\,(srx+t\,Sin\,2rx)}{Sin\,rx}\,\frac{dx}{q^2-x^2}=\frac{\pi}{q\,Sin\,2qr}\left\{e^t-e^{t\,Cos\,2qr}\,Cos^s\,qr\,.\right.$

$\left.Cos\,(sqr+t\,Sin\,2qr)\right\}$ (H, 159).

17) $\int \frac{1-e^{t\,Cos\,2rx}\,Cos^s\,rx\,.\,Cos\,(srx+t\,Sin\,2rx)}{Sin\,2rx}\,\frac{x\,dx}{q^2-x^2}=-\frac{\pi}{4}\,e^{t\,Cos\,2qr}\,Cos^{s-1}\,qr$

$\frac{Sin(sqr+t\,Sin\,2qr)}{Sin\,qr}$ (H, 159).

18) $\int e^{t\,Cos\,2rx}\,Cos^{s-1}\,rx\,\frac{Sin\,\{(s+2)rx+t\,Sin\,2rx\}}{Sin\,rx}\,\frac{dx}{q^2-x^2}=\frac{\pi}{q\,Sin\,2\,qr}\left\{e^t-e^{t\,Cos\,2qr}\,Cos^s\,qr\,.\right.$

$\left.Cos\,\{(s+2)qr+t\,Sin\,2\,qr\}\right\}$ (H, 166).

19) $\int e^{t\,Cos\,2rx}\,Cos^{s-1}\,rx\,\frac{Cos\,\{(s+2)rx+t\,Sin\,2rx\}}{Sin\,rx}\,\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\,e^{t\,Cos\,2qr}\,Cos^{s-1}\,qr$

$\frac{Sin\,\{(s+2)qr+t\,Sin\,2qr\}}{Sin\,qr}$ (H, 166).

F. Alg. rat. fract. binôme q^2+x^2;
Exponentielle;
Circ. Dir. au dén. trinôme; $[p^2<1]$.

TABLE 392.

Lim. 0 et ∞.

1) $\displaystyle\int e^{s\,Cos\,rx}\frac{Sin\,(s\,Sin\,rx)}{1-2p\,Cos\,rx+p^2}\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2(1-pe^{-qr})(1-pe^{qr})}\left(e^{se^{-qr}}-e^{ps}\right)$ (H, 154).

2) $\displaystyle\int e^{s\,Cos\,rx}\frac{Cos\,(s\,Sin\,rx)}{1-2p\,Cos\,rx+p^2}\,\frac{dx}{q^2+x^2}=\frac{\pi}{2q(1-pe^{-qr})(1-pe^{qr})}\left\{e^{se^{-qr}}-\right.$

$\displaystyle\left.-\frac{p}{1-p^2}\left(e^{qr}-e^{-qr}\right)e^{ps}\right\}$ (H, 154).

3) $\displaystyle\int e^{s\,Cos\,rx}\frac{Sin\,(s\,Sin\,rx+rx)}{1-2p\,Cos\,rx+p^2}\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2(1-pe^{-qr})(1-pe^{qr})}\left(e^{se^{-qr}-qr}-pe^{ps}\right)$ (H, 156).

4) $\displaystyle\int e^{s\,Cos\,rx}\frac{Cos\,(s\,Sin\,rx+rx)}{1-2p\,Cos\,rx+p^2}\,\frac{dx}{q^2+x^2}=\frac{\pi}{2q(1-pe^{-qr})(1-pe^{qr})}\left\{e^{se^{-qr}-qr}-\right.$

$\displaystyle\left.-\frac{p^2}{1-p^2}\left(e^{qr}-e^{-qr}\right)e^{ps}\right\}$ (H, 156).

5) $\displaystyle\int e^{t\,Cos\,2rx}\,Cos^s\,rx\,\frac{Sin\,(srx+t\,Sin\,2rx)}{1-2p\,Cos\,2rx+p^2}\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+1}(1-pe^{-2qr})(1-pe^{2qr})}$

$\displaystyle\left\{(1+e^{-2qr})^s\,e^{te^{-2qr}}-(1+p)^s\,e^{pt}\right\}$ (H, 159).

6) $\displaystyle\int e^{t\,Cos\,2rx}\,Cos^s\,rx\,\frac{Cos\,(srx+t\,Sin\,2rx)}{1-2p\,Cos\,2rx+p^2}\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+1}q(1-pe^{-2qr})(1-pe^{2qr})}$

$\displaystyle\left\{(1+e^{-2qr})^s\,e^{te^{-2qr}}-\frac{p}{1-p}\left(e^{2qr}-e^{-2qr}\right)(1+p)^{s-1}e^{pt}\right\}$ (H, 158).

7) $\displaystyle\int e^{t\,Cos\,2rx}\,Sin^s\,rx\,.\,Cos^u\,rx\,\frac{Sin\left\{\frac{1}{2}s\pi-(s+u)rx-t\,Sin\,2rx\right\}}{1-2p\,Cos\,2rx+p^2}\,\frac{x\,dx}{q^2+x^2}=$

$\displaystyle=\frac{\pi}{2^{s+u+1}(1-pe^{-2qr})(1-pe^{2qr})}\left\{(1+p)^u\,(1-p)^s\,e^{pt}-\right.$

$\displaystyle\left.-(1+e^{-2qr})^u(1-e^{-2qr})^s\,e^{te^{-2qr}}\right\}$ (H, 160).

8) $\displaystyle\int e^{t\,Cos\,2rx}\,Sin^s\,rx\,.\,Cos^u\,rx\,\frac{Cos\left\{\frac{1}{2}s\pi-(s+u)rx-t\,Sin\,2rx\right\}}{1-2p\,Cos\,2rx+p^2}\,\frac{dx}{q^2+x^2}=$

$\displaystyle=\frac{\pi}{2^{s+u+1}q(1-pe^{-2qr})(1-pe^{2qr})}\left\{(1+e^{-2qr})^u\,(1-e^{-2qr})^s\,e^{te^{-2qr}}-\right.$

$\displaystyle\left.-p(1+p)^{u-1}\,(1-p)^{s-1}\,e^{pt}\,(e^{2qr}-e^{-2qr})\right\}$ (H, 160).

9) $\displaystyle\int e^{t\,Cos\,2rx}\,Cos^s\,rx\,\frac{Sin\left\{(s+2)rx+t\,Sin\,2rx\right\}}{1-2p\,Cos\,2rx+p^2}\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+1}(1-pe^{-2qr})(1-pe^{2qr})}$

$\displaystyle\left\{(1+e^{-2qr})^s\,e^{te^{-qr}-2qr}-p(1+p)^s\,e^{pt}\right\}$ (H, 164).

10) $\int e^{t\,Cos\,2rx}\,Cos^s rx\,\frac{Cos\{(s+2)rx+t\,Sin\,2rx\}}{1-2p\,Cos\,2rx+p^2}\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+1}q(1-pe^{-2qr})(1-pe^{2qr})}$
$\left\{(1+e^{-2qr})^s e^{te^{-qr}-2qr}-\frac{2p^2}{1-p}(e^{2qr}-e^{-2qr})(1+p)^{s-1}e^{pt}\right\}$ (H, 164).

11) $\int e^{t\,Cos\,2rx}\,Sin^s rx.\,Cos^u rx\,\frac{Sin\{\frac{1}{2}s\pi-(s+u+2)rx-t\,Sin\,2rx\}}{1-2p\,Cos\,2rx+p^2}\,\frac{x\,dx}{q^2+x^2}=$
$=\frac{\pi}{2^{s+u+1}(1-pe^{-2qr})(1-pe^{2qr})}\{(1+e^{-2qr})^u(1-e^{-2qr})^s e^{te^{-2qr}-2qr}-$
$-p(1+p)^u(1-p)^s e^{pt}\}$ (H, 167).

12) $\int e^{t\,Cos\,2rx}\,Sin^s rx.\,Cos^u rx\,\frac{Cos\{\frac{1}{2}s\pi-(s+u+2)rx-t\,Sin\,2rx\}}{1-2p\,Cos\,2rx+p^2}\,\frac{dx}{q^2+x^2}=$
$=\frac{\pi}{2^{s+u+1}q(1-pe^{-2qr})(1-pe^{2qr})}\{(1+e^{-2qr})^u(1-e^{-2qr})^s e^{te^{-2qr}-2qr}-$
$-p^2(1+p)^{u-1}(1-p)^{s-1}e^{pt}(e^{2qr}-e^{-2qr})\}$ (H, 167).

13) $\int e^{t\,Cos\,ux}\,Cos^s rx\,\frac{Sin(srx+t\,Sin\,ux)-p\,Sin(srx+t\,Sin\,ux-nx)}{1-2p\,Cos\,nx+p^2}\,\frac{x\,dx}{q^2+x^2}=$
$=\frac{\pi}{2}\,\frac{e^{te^{-qu}}}{1-pe^{-nq}}\left(\frac{1+e^{-2qr}}{2}\right)^s-\frac{\pi}{2^{s+1}}$

14) $\int e^{t\,Cos\,ux}\,Cos^s rx\,\frac{Cos(srx+t\,Sin\,ux)-p\,Cos(srx+t\,Sin\,ux-nx)}{1-2p\,Cos\,nx+p^2}\,\frac{dx}{q^2+x^2}=$
$=\frac{\pi}{2q}\,\frac{e^{te^{-qu}}}{1-pe^{-nq}}\left(\frac{1+e^{-2qr}}{2}\right)^s$

Sur 13) et 14) voyez Malmsten, Nova Acta Upsal. 12, 171.

F. Alg. rat. fract. d'autre forme;
Exponentielle; TABLE 393. Lim. 0 et ∞.
Circ. Dir. au dén. trinôme; $[p^2<1]$.

1) $\int e^{s\,Cos\,rx}\,\frac{Sin(s\,Sin\,rx)}{1-2p\,Cos\,rx+p^2}\,\frac{dx}{x}=\frac{\pi}{2(1-p)^2}(e^s-e^{ps})$ (H, 154).

2) $\int e^{s\,Cos\,rx}\,\frac{Sin(rx+s\,Sin\,rx)}{1-2p\,Cos\,rx+p^2}\,\frac{dx}{x}=\frac{\pi}{2(1-p)^2}(e^s-pe^{ps})$ (H, 155).

3) $\int e^{t\,Cos\,2rx}\,Cos^s rx\,\frac{Sin(srx+t\,Sin\,2rx)}{1-2p\,Cos\,2rx+p^2}\,\frac{dx}{x}=\frac{\pi}{2^{s+1}(1-p)^2}\{2^s e^t-(1+p)^s e^{pt}\}$ (H, 158).

4) $\int e^{t \, Cos \, 2rx} \, Sin^s rx \, . \, Cos^q rx \, \frac{Sin\left\{\frac{1}{2} s\pi - (q+s) rx - t \, Sin \, 2rx\right\}}{1 - 2p \, Cos \, 2rx + p^2} \, \frac{dx}{x} =$

$= \frac{\pi}{2^{q+s+1}} (1+p)^q (1-p)^{s-2} e^{pt}$ (H, 159).

5) $\int e^{t \, Cos \, 2rx} \, Cos^s rx \, \frac{Sin\left\{(s+2) \, Sin \, rx + t \, Sin \, 2rx\right\}}{1 - 2p \, Cos \, 2rx + p^2} \, \frac{dx}{x} = \frac{\pi}{2^{s+1} (1-p)^2} \left\{2^s e^t - p(1+p)^s e^{tu}\right\}$ (H, 163).

6) $\int e^{t \, Cos \, 2rx} \, Sin^s rx \, . \, Cos^q rx \, \frac{Sin\left\{\frac{1}{2} s\pi - (q+s+2) rx - t \, Sin \, 2rx\right\}}{1 - 2p \, Cos \, 2rx + p^2} \, \frac{dx}{x} =$

$= \frac{-p\pi}{2^{q+s+1}} (1+p)^q (1-p)^{s-2} e^{pt}$ (H, 167).

7) $\int e^{s \, Cos \, rx} \, \frac{Sin(s \, Sin \, rx)}{1 - 2p \, Cos \, rx + p^2} \, \frac{x \, dx}{q^2 - x^2} = \frac{\pi}{2(1 - 2p \, Cos \, qr + p^2)} \left\{e^{ps} - e^{s \, Cos \, qr} \, Cos(s \, Sin \, qr)\right\}$ (H, 154).

8) $\int e^{s \, Cos \, rx} \, \frac{Cos(s \, Sin \, rx)}{1 - 2p \, Cos \, rx + p^2} \, \frac{dx}{q^2 - x^2} = \frac{\pi}{2q(1 - 2p \, Cos \, qr + p^2)} \left\{\frac{2p}{1-p^2} e^{ps} \, Sin \, qr + \right.$

$\left. + e^{s \, Cos \, qr} \, Sin(s \, Sin \, qr)\right\}$ (H, 154).

9) $\int e^{s \, Cos \, rx} \, \frac{Sin(s \, Sin \, rx + rx)}{1 - 2p \, Cos \, rx + p^2} \, \frac{x \, dx}{q^2 - x^2} = \frac{\pi}{2(1 - 2p \, Cos \, qr + p^2)} \left\{p e^{ps} - e^{s \, Cos \, qr} \right.$

$\left. Cos(s \, Sin \, qr + qr)\right\}$ (H, 156).

10) $\int e^{s \, Cos \, rx} \, \frac{Cos(s \, Sin \, rx + rx)}{1 - 2p \, Cos \, rx + p^2} \, \frac{dx}{q^2 - x^2} = \frac{\pi}{2q(1 - 2p \, Cos \, qr + p^2)} \left\{\frac{2p^2}{1-p^2} e^{ps} \, Sin \, qr + \right.$

$\left. + e^{s \, Cos \, qr} \, Sin(s \, Sin \, qr + qr)\right\}$ (H, 156).

11) $\int e^{t \, Cos \, 2rx} \, Cos^s rx \, \frac{Sin(srx + t \, Sin \, 2rx)}{1 - 2p \, Cos \, 2rx + p^2} \, \frac{x \, dx}{q^2 - x^2} = \frac{\pi}{2^{s+1}(1 - 2p \, Cos \, 2qr + p^2)} \left\{(1+p)^s e^{pt} - \right.$

$\left. - 2^s e^{t \, Cos \, 2qr} \, Cos^s qr \, . \, Cos(sqr + t \, Sin \, 2qr)\right\}$ (H, 159).

12) $\int e^{t \, Cos \, 2rx} \, Cos^s rx \, \frac{Cos(srx + t \, Sin \, 2rx)}{1 - 2p \, Cos \, 2rx + p^2} \, \frac{dx}{q^2 - x^2} = \frac{\pi}{2^{s+1} q (1 - 2p \, Cos \, 2qr + p^2)}$

$\left\{\frac{2p}{1-p} (1+p)^{s-1} e^{pt} \, Sin \, 2qr + 2^s e^{t \, Cos \, 2qr} \, Cos^s qr \, . \, Sin(sqr + t \, Sin \, 2qr)\right\}$ (H, 159).

13) $\int e^{t \, Cos \, 2rx} \, Sin^s rx \, . \, Cos^u rx \, \frac{Sin\left\{\frac{1}{2} s\pi - (s+u) rx - t \, Sin \, 2rx\right\}}{1 - 2p \, Cos \, 2rx + p^2} \, \frac{x \, dx}{q^2 - x^2} = \frac{\pi}{2(1 - 2p \, Cos \, 2qr + p^2)}$

$\left\{e^{t \, Cos \, 2qr} \, Sin^s qr \, . \, Cos^u qr \, . \, Cos\left\{\frac{1}{2} s\pi - (s+u) qr - t \, Sin \, 2qr\right\} - 2^{-u-s} (1+p)^u (1-p)^s e^{pt}\right\}$

(H, 160).

F. Alg. rat. fract. d'autre forme;
Exponentielle;
Circ. Dir. au dén. trinôme; $[p^2<1]$.

TABLE 393, suite.

Lim. 0 et ∞.

14) $$\int e^{t\,Cos\,2rx}\,Sin^s rx.\,Cos^u rx\,\frac{Cos\{\frac{1}{2}s\pi-(s+u)rx-t\,Sin\,2rx\}}{1-2p\,Cos\,2rx+p^2}\,\frac{dx}{q^2-x^2}=\frac{\pi}{2q(1-2p\,Cos\,2qr+p^2)}$$
$$\left\{\frac{p}{2^{s+u-1}}(1+p)^{u-1}(1-p)^{s-1}e^{pt}\,Sin\,2qr+e^{t\,Cos\,2qr}\,Sin^s qr.\,Cos^u qr.\,Sin\left\{\frac{1}{2}s\pi-\right.\right.$$
$$\left.\left.-(s+u)qr-t\,Sin\,2qr\right\}\right\}$$ (H, 161).

15) $$\int e^{t\,Cos\,2rx}\,Cos^s rx\,\frac{Sin\{(s+2)rx+t\,Sin\,2rx\}}{1-2p\,Cos\,2rx+p^2}\,\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2^{s+1}(1-2p\,Cos\,2qr+p^2)}$$
$$\left\{(1+p)^s pe^{pt}-2^s e^{t\,Cos\,2qr}\,Cos^s qr.\,Cos\{(s+2)qr+t\,Sin\,2qr\}\right\}$$ (H, 166).

16) $$\int e^{t\,Cos\,2rx}\,Cos^s rx\,\frac{Cos\{(s+2)rx+t\,Sin\,2rx\}}{1-2p\,Cos\,2rx+p^2}\,\frac{dx}{q^2-x^2}=\frac{\pi}{2^{s+1}q(1-2p\,Cos\,2qr+p^2)}$$
$$\left\{\frac{p^2}{1-p}(1+p)^{s-1}e^{pt}\,Sin\,2qr+2^{s-1}e^{t\,Cos\,2qr}\,Cos^s qr.\,Sin\{(s+2)qr+t\,Sin\,2qr\}\right\}$$ (H, 166).

17) $$\int e^{t\,Cos\,2rx}\,Sin^s rx.\,Cos^u rx\,\frac{Sin\{\frac{1}{2}s\pi-(s+u+2)rx-t\,Sin\,2rx\}}{1-2p\,Cos\,2rx+p^2}\,\frac{x\,dx}{q^2-x^2}=$$
$$=\frac{\pi}{2(1-2p\,Cos\,2qr+p^2)}\left\{e^{t\,Cos\,2qr}\,Sin^s qr.\,Cos^u qr.\,Cos\left\{\frac{1}{2}s\pi-(s+u+2)qr-t\,Sin\,2qr\right\}-\right.$$
$$\left.-\frac{p}{2^{s+u}}(1+p)^u(1-p)^s e^{pu}\right\}$$ (H, 170).

18) $$\int e^{t\,Cos\,2rx}\,Sin^s rx.\,Cos^u rx\,\frac{Cos\{\frac{1}{2}s\pi-(s+u+2)rx-t\,Sin\,2rx\}}{1-2p\,Cos\,2rx+p^2}\,\frac{dx}{q^2-x^2}=$$
$$=\frac{\pi}{2q(1-2p\,Cos\,2qr+p^2)}\left\{\frac{p^2}{2^{s+u-1}}(1+p)^{u-1}(1-p)^{s-1}e^{pt}\,Sin\,2qr+\right.$$
$$\left.+e^{t\,Cos\,2qr}\,Sin^s qr.\,Cos^u qr.\,Sin\left\{\frac{1}{2}s\pi-(s+u+2)qr-t\,Sin\,2qr\right\}\right\}$$
(H, 170).

F. Algébr. irrat. ent.;
Exponentielle;
Circulaire Directe.

TABLE 394.

Lim. 0 et ∞.

1) $$\int e^{-qx}\,Sin\,px.\,dx\,\sqrt{x}=\frac{1}{4}\sqrt{\{-q^3+3qp^2+\sqrt{p^2+q^2}^{\,3}\}}.\sqrt{\frac{2\pi}{(p^2+q^2)^3}}$$ (IV, 513).

2) $$\int e^{-qx}\,Sin\,px.\,x\,dx\,\sqrt{x}=\frac{3}{8}\sqrt{\{-q^5+10q^3p^2-5qp^4+\sqrt{p^2+q^2}^{\,5}\}}.\sqrt{\frac{2\pi}{(p^2+q^2)^5}}$$
(IV, 513).

3) $\int e^{-qx}\, Sin\, px\,.\,x^2\,dx\sqrt{x}=\frac{15}{16}\sqrt{\left\{-q^7+21q^5p^2-35q^3p^4+7qp^6+\sqrt{p^2+q^2}^{\,7}\right\}}\,.\,\sqrt{\frac{2\pi}{(p^2+q^2)^7}}$ (IV, 513).

4) $\int e^{-qx}\, Cos\, px\,.\,dx\sqrt{x}=\frac{1}{4}\sqrt{\left\{q^3-3qp^2+\sqrt{p^2+q^2}^{\,3}\right\}}\,.\,\sqrt{\frac{2\pi}{(p^2+q^2)^3}}$ (IV, 513).

5) $\int e^{-qx}\, Cos\, px\,.\,x\,dx\sqrt{x}=\frac{3}{8}\sqrt{\left\{q^5-10q^3p^2+5qp^4+\sqrt{p^2+q^2}^{\,5}\right\}}\,.\,\sqrt{\frac{2\pi}{(p^2+q^2)^5}}$ (IV, 513).

6) $\int e^{-qx}\, Cos\, px\,.\,x^2\,dx\sqrt{x}=\frac{15}{16}\sqrt{\left\{q^7-21q^5p^2+35q^3p^4-7qp^6+\sqrt{p^2+q^2}^{\,7}\right\}}\,.\,\sqrt{\frac{2\pi}{(p^2+q^2)^7}}$ (IV, 513).

F. Algébr. irrat. fract.;
Exponentielle;
Circulaire Directe.

TABLE 395.

Lim. 0 et ∞.

1) $\int e^{-qx}\, Sin\, px\,\frac{dx}{\sqrt{x}}=\sqrt{\left\{\frac{\pi}{2}\,\frac{\sqrt{p^2+q^2}-q}{p^2+q^2}\right\}}$ (VIII, 529).

2) $\int e^{-qx}\, Cos\, px\,\frac{dx}{\sqrt{x}}=\sqrt{\left\{\frac{\pi}{2}\,\frac{\sqrt{p^2+q^2}+q}{p^2+q^2}\right\}}$ (VIII, 529).

3) $\int e^{-qx}\, Cos(2\sqrt{px})\,\frac{dx}{\sqrt{x}}=e^{-\frac{p}{q}}\sqrt{\frac{\pi}{q}}$ (VIII, 514).

4) $\int e^{-p^2x-\frac{q^2}{x}}\, Sin\, rx\,\frac{dx}{\sqrt{x}}=e^{-2q\lambda}(\lambda\, Sin\, 2q\mu+\mu\, Cos\, 2q\mu)\sqrt{\frac{\pi}{r^2+p^4}}$ (VIII, 451).

5) $\int e^{-p^2x-\frac{q^2}{x}}\, Cos\, rx\,\frac{dx}{\sqrt{x}}=e^{-2q\lambda}(\lambda\, Cos\, 2q\mu-\mu\, Sin\, 2q\mu)\sqrt{\frac{\pi}{r^2+p^4}}$ (VIII, 451).

Où $2\lambda=\sqrt{\left\{\sqrt{r^2+p^4}+p^2\right\}}+\sqrt{\left\{\sqrt{r^2+p^4}-p^2\right\}}$,

$2\mu=\sqrt{\left\{\sqrt{r^2+p^4}+p^2\right\}}-\sqrt{\left\{\sqrt{r^2+p^4}-p^2\right\}}$

6) $\int \frac{Sin\, px}{e^x+e^{-x}}\,\frac{dx}{\sqrt{x}}=\sum_0^\infty(-1)^n\sqrt{\left\{\frac{\pi}{2}\,\frac{\sqrt{p^2+(2n+1)^2}-2n-1}{p^2+(2n+1)^2}\right\}}$ (VIII, 487).

7) $\int \frac{Sin\, px}{e^x+1+e^{-x}}\,\frac{dx}{\sqrt{x}}=Cosec\,\frac{\pi}{3}\,.\sum_1^\infty(-1)^{n-1}\, Sin\,\frac{n\pi}{3}\,.\sqrt{\left\{\frac{\pi}{2}\,\frac{\sqrt{p^2+n^2}-n}{p^2+n^2}\right\}}$ (VIII, 487).

8) $\int \frac{Cos\, px}{e^x+e^{-x}}\,\frac{dx}{\sqrt{x}}=\sum_0^\infty(-1)^n\sqrt{\left\{\frac{\pi}{2}\,\frac{\sqrt{p^2+(2n+1)^2}+2n+1}{p^2+(2n+1)^2}\right\}}$ (VIII, 487).

F. Algébr. irrat. fract.; Exponentielle; Circulaire Directe. — TABLE 395, suite. — Lim. 0 et ∞.

9) $\int \frac{Cos\, p x}{e^x+1+e^{-x}} \frac{dx}{\sqrt{x}} = Cosec \frac{\pi}{3} . \sum_1^\infty (-1)^{n-1} Sin \frac{n\pi}{3} . \sqrt{\left\{\frac{\pi}{2} \frac{\sqrt{p^2+n^2}+n}{p^2+n^2}\right\}}$ (VIII, 487).

10) $\int e^{-qx} Sin\, q x \frac{dx}{x\sqrt{x}} = -\sqrt{\{(\sqrt{2}-1) 2 q \pi\}}$ (IV, 515).

11) $\int e^{-qx} Sin\, p x \frac{dx}{x\sqrt{x}} = -\sqrt{[2\pi\{-q+\sqrt{p^2+q^2}\}]}$ (IV, 515).

12) $\int e^{-q\sqrt{x}} \frac{\{p+\sqrt{x}\} Cos(q\sqrt{x}) - Sin(q\sqrt{x}).\sqrt{x}}{2x+2p\sqrt{x}+p^2} dx = 0$ (IV, 516).

13) $\int e^{-q\sqrt{x}} \frac{(p+\sqrt{x}) Cos(q\sqrt{x}) - Sin(q\sqrt{x}).\sqrt{x}}{2x+2p\sqrt{x}+p^2} \frac{dx}{r^2-x^2} = \frac{(p+\sqrt{r}) Sin(q\sqrt{r}) + Cos(q\sqrt{r}).\sqrt{r}}{2r+2p\sqrt{r}+p^2} \frac{\pi e^{-q\sqrt{r}}}{2r}$ (IV, 516).

F. Algébrique; Exponentielle; Circulaire Directe. — TABLE 396. — Lim. 0 et $\frac{\pi}{2}$.

1) $\int e^{-px} Sin\, x . x\, dx = \frac{1}{(1+p^2)^2} \left[\left\{1-p^2-\frac{1}{2} p\pi(1+p^2)\right\} e^{-\frac{1}{2}p\pi} + 2p\right]$ (VIII, 566).

2) $\int e^{-px} Cos\, x . x\, dx = \frac{1}{(1+p^2)^2} \left[p^2-1+\left\{\frac{\pi}{2}(1+p^2)+2p\right\} e^{-\frac{1}{2}p\pi}\right]$ (VIII, 566).

3) $\int e^{-q\, Tg\, x} \frac{x\, dx}{Cos^2 x} = \frac{1}{q}\left[Ci(q).Sin\, q + Cos\, q.\left\{\frac{\pi}{2} - Si(q)\right\}\right]$ V. T. 271, N. 2.

4) $\int e^{-q\, Tg\, x} \frac{Sin\, x + Cos\, x}{Cos^3 x} x\, dx = Sin\, q.\left\{\frac{\pi}{2} - Si(q)\right\} - Ci(q).Cos\, q$ V. T. 271, N. 3.

5) $\int e^{-Tg^2 x} Sin\, 4x \frac{x\, dx}{Cos^6 x} = -\frac{3}{2}\sqrt{\pi}$ V. T. 272, N. 9.

6) $\int e^{-Tg^2 x} Sin^3 2x \frac{x\, dx}{Cos^6 x} = 2\sqrt{\pi}$ V. T. 272, N. 9.

7) $\int e^{-q\, Tg^2 x} \frac{q - Cos^2 x}{Cos^4 x . Cot\, x} x\, dx = \frac{1}{4}\sqrt{\frac{\pi}{q}}$ V. T. 272, N. 9.

8) $\int e^{-q\, Tg^2 x} \frac{q - 2\, Cos^2 x}{Cos^6 x . Cot\, x} x\, dx = \frac{1+2q}{8}\sqrt{\frac{\pi}{q}}$ V. T. 272, N. 11.

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9) $\int \frac{e^{\frac{1}{2}\pi Tg x} - e^{-\frac{1}{2}\pi Tg x}}{(e^{\frac{1}{2}\pi Tg x} + e^{-\frac{1}{2}\pi Tg x})^2} \frac{x\,dx}{Cos^2 x} = \frac{\sqrt{2}}{\pi}\left\{\pi + l\frac{\sqrt{2}-1}{\sqrt{2}+1}\right\}$ V. T. 274, N. 1.

10) $\int \frac{e^{\frac{1}{2}\pi Tg x} - e^{-\frac{1}{2}\pi Tg x}}{(e^{\frac{1}{2}\pi Tg x} + e^{-\frac{1}{2}\pi Tg x})^2} \frac{x\,dx}{Cos^2 x} = \frac{1}{\pi} l2$ V. T. 274, N. 2.

11) $\int \frac{e^{\pi Tg x} - e^{-\pi Tg x}}{(e^{\pi Tg x} + e^{-\pi Tg x})^2} \frac{x\,dx}{Cos^2 x} = \frac{4-\pi}{4\pi}$ V. T. 274, N. 3.

F. Algébrique;
Exponentielle;
Circulaire Directe.

TABLE 397.

Lim. diverses.

1) $\int_0^1 \left(Cos\, px - \frac{e^{qx}+e^{-qx}}{2}\right)\frac{dx}{x} = l\left(\frac{q}{p}\right) + Ci(p) - \frac{1}{2}Ei(q) - \frac{1}{2}Ei(-q)$ (IV, 516*).

2) $\int_{-1}^{1} \frac{e^{p\sqrt{(1-x^2)}} + e^{-p\sqrt{(1-x^2)}}}{s-tx} \frac{Sin\, px}{\sqrt{1-x^2}} dx = \frac{\pi}{2\sqrt{s^2-t^2}} Sin\left\{p\frac{s-\sqrt{s^2-t^2}}{2t}\right\}$ $[t<s]$ (VIII, 549).

3) $\int_{-1}^{1} \frac{e^{p\sqrt{(1-x^2)}} + e^{-p\sqrt{(1-x^2)}}}{s-tx} \frac{Cos\, px}{\sqrt{1-x^2}} dx = \frac{\pi}{2\sqrt{s^2-t^2}} Cos\left\{p\frac{s-\sqrt{s^2-t^2}}{2t}\right\}$ $[t<s]$ (VIII, 549).

4) $\int_{-\infty}^{\infty} e^{-px^2+2qx Cos\lambda} Sin(2qx Sin\lambda) . x\,dx = \frac{q\pi}{p} e^{\frac{q^2}{p}Cos 2\lambda} Sin\left(\lambda + \frac{q^2}{p} Sin 2\lambda\right) . \sqrt{\frac{\pi}{p}}$ (IV, 516).

5) $\int_{-\infty}^{\infty} e^{-px^2+2qx Cos\lambda} Cos(2qx Sin\lambda) . x\,dx = \frac{q\pi}{p} e^{\frac{q^2}{p}Cos 2\lambda} Cos\left(\lambda + \frac{q^2}{p} Sin 2\lambda\right) . \sqrt{\frac{\pi}{p}}$ (IV, 516).

6) $\int_{-\infty}^{\infty} e^{pxi} Cos\, qx \frac{dx}{r^2+x^2} = \frac{\pi}{2r} e^{-qr}(e^{pr}+e^{-pr})$ $[q>p]$ Lobatto, N. V. Amst. 6, 1.

7) $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} e^{(q+1)xi} Cos^{q-1} x . x\,dx = \frac{\pi i}{2^q q}$ (IV, 516).

8) $\int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi} e^{(q+2a)xi} Cos^q x . x\,dx = \frac{\pi}{i} \frac{Cos\, a\pi}{2^{q+1}} \frac{1^{a-1/1}}{q^{a-1/1}}$ (VIII, 430).

9) $\int_{\frac{\pi}{2}}^{\infty} e^{-px} Sin\, x . x\,dx = e^{-\frac{1}{2}p\pi} \frac{(1+p^2)\frac{1}{2}p\pi + p^2 - 1}{(1+p^2)^2}$ (VIII, 566).

10) $\int_{\frac{\pi}{2}}^{\infty} e^{-px} Cos\, x . x\,dx = -e^{-\frac{1}{2}p\pi} \frac{\frac{1}{2}\pi(1+p^2) + 2p}{(1+p^2)^2}$ (VIII, 566).

F. Algébrique ; Exponentielle ; Circulaire Directe.	Intégr. Lim. [Lim. $k=\infty$]. TABLE 398.	Lim. diverses.

1) $\int_0^\infty e^{-\frac{x}{k}} Sin\, q x . x^{p-1}\, dx = q^{-p}\Gamma(p)\, Sin \frac{1}{2} p\pi$ (IV, 498).

2) $\int_0^\infty e^{-\frac{x}{k}} Cos\, q x . x^{p-1}\, dx = q^{-p}\Gamma(p)\, Cos \frac{1}{2} p\pi$ (IV, 498).

3) $\int_0^\infty \frac{e^{-kx} Sin\, px}{e^x + e^{-x}} \frac{dx}{\sqrt{x}} = 0$ (VIII, 318).

4) $\int_0^\infty \frac{e^{-kx} Cos\, px}{e^x + e^{-x}} \frac{dx}{\sqrt{x}} = 0$ (VIII, 318).

5) $\int_0^\infty \frac{e^{-kx} Sin\, px}{e^x + 1 + e^{-x}} \frac{dx}{\sqrt{x}} = 0$ (VIII, 318).

6) $\int_0^\infty \frac{e^{-kx} Cos\, px}{e^x + 1 + e^{-x}} \frac{dx}{\sqrt{x}} = 0$ (VIII, 318).

7) $\int_0^a \frac{e^{px} + e^{-px}}{e^{rx} - e^{-rx}} \frac{Sin\, kx}{q^2 + x^2}\, dx = 0 \; [0 < a < \infty]$ (VIII, 378).

8) $\int_0^a \frac{e^{px} - e^{-px}}{e^{rx} - e^{-rx}} \frac{Cos\, kx}{q^2 + x^2}\, dx = 0 \; [0 < a < \infty]$ (VIII, 378).

F. Algébrique ; Exponentielle ; Circulaire Inverse.	TABLE 399.	Lim. 0 et ∞.

1) $\int e^{-px} Arctg \frac{x}{q} . x\, dx = \frac{1}{p^2}\left[Ci(pq) . Sin\, pq - \left(Si(pq) - \frac{\pi}{2}\right) Cos\, pq - pq \left\{ Ci(pq) . Cos\, pq + \right.\right.$

$\left.\left. + \left(Si(pq) - \frac{\pi}{2}\right) Sin\, pq \right\}\right]$ (VIII, 598).

2) $\int e^{-px} Arctg \frac{x}{q} . x^{2a}\, dx = \frac{1}{p^{2a+1}} \left[\left\{ Ci(pq) . Sin\, pq - \left(Si(pq) - \frac{\pi}{2}\right) Cos\, pq \right\} 1^{2a/1} \sum_0^a \frac{(-p^2q^2)^n}{1^{2n/1}} - \right.$

$- pq \left\{ Ci(pq) . Cos\, pq + \left(Si(pq) - \frac{\pi}{2}\right) Sin\, pq \right\} 1^{2a/1} \sum_0^{a-1} \frac{(-p^2q^2)^n}{1^{2n+1/1}} + 3^{2a-2/1} pq \sum_1^a$

$\left. \left\{ \frac{1}{1^{2n/1}} \sum_0^{n-1} 1^{2n-2m/1} (-p^2q^2)^m \right\} + 4^{2a-3/1} pq \sum_1^a \left\{ \frac{1}{1^{2n/1}} \sum_0^{n-1} 1^{2n-2m-1/1} (-p^2q^2)^m \right\} \right]$

(IV, 517).

3) $\int e^{-px} Arctg \frac{x}{q} . x^{2a+1}\, dx = \frac{1}{p^{2a+2}} \left[\left\{ Ci(pq) . Sin\, pq - \left(Si(pq) - \frac{\pi}{2}\right) Cos\, pq \right\} 1^{2a+1/1} \sum_0^a \frac{(-p^2q^2)^n}{1^{2n/1}} - \right.$

$- pq \left\{ Ci(pq) . Cos\, pq + \left(Si(pq) - \frac{\pi}{2}\right) Sin\, pq \right\} 1^{2a+1/1} \sum_0^a \frac{(-p^2q^2)^n}{1^{2n+1/1}} + 3^{2a-1/1} pq \sum_1^{a+1}$

$\left. \left\{ \frac{1}{1^{2n+1/1}} \sum_0^{n-1} 1^{2n-2m+1/1} (-p^2q^2)^m \right\} + 4^{2a-2/1} pq \sum_1^a \left\{ \frac{1}{1^{2n/1}} \sum_0^{n-1} 1^{2n-2m/1} (-p^2q^2)^m \right\} \right]$

(IV, 517).

4) $\int e^{-px} \, Arccot\frac{x}{q} \, . \, x\,dx = \frac{1}{p^2}\left[\pi \, Sin^2 \frac{1}{2}pq - Ci(pq).Sin pq + Si(pq).Cos pq + pq\left\{Ci(pq).Cos pq + \right.\right.$
$\left.\left. + \left(Si(pq) - \frac{\pi}{2}\right) Sin pq\right\}\right]$ (VIII, 598).

5) $\int Arctg\frac{x}{q} \frac{(2\pi x - 1)e^{2\pi x} + 1}{(e^{2\pi x} - 1)^2} dx = -\frac{1}{4} + \frac{1}{2} q\,l\,q - \frac{1}{2} q Z'(q)$ V. T. 97, N. 20.

6) $\int Arctg\,x \frac{(\pi x - 1)e^{\pi x} + (\pi x + 1)e^{-\pi x}}{(e^{\pi x} - e^{-\pi x})^2} dx = \frac{1}{2}\left(l2 - \frac{1}{2}\right)$ V. T. 97, N. 7.

7) $\int Arctg\,x \frac{e^{-2\pi x} + 2\pi x - 1}{(e^{\pi x} - e^{-\pi x})^2} dx = \frac{1}{2}\Lambda - \frac{1}{4}$ V. T. 97, N. 14.

8) $\int Arctg\,x \frac{e^{-2qx} + 2qx - 1}{(e^{qx} - e^{-qx})^2} dx = \frac{1}{2} l\frac{q}{\pi} + \frac{\pi}{4q} - \frac{1}{2} Z'\left(\frac{\pi + q}{\pi}\right)$ V. T. 97, N. 15.

9) $\int Arctg\,x \frac{\pi x(e^{\frac{1}{2}\pi x} + e^{-\frac{1}{2}\pi x}) - 4(e^{\frac{1}{2}\pi x} - e^{-\frac{1}{2}\pi x})}{(e^{\frac{1}{2}\pi x} - e^{-\frac{1}{2}\pi x})^2} dx = \pi\sqrt{2} - 4 + \sqrt{2}\,.\,l\frac{\sqrt{2}+1}{\sqrt{2}-1}$
V. T. 97, N. 9.

10) $\int Arctg\,x \frac{(e^{\frac{1}{2}\pi x} + e^{-\frac{1}{2}\pi x})\pi x - 2(e^{\frac{1}{2}\pi x} - e^{-\frac{1}{2}\pi x})}{(e^{\frac{1}{2}\pi x} - e^{-\frac{1}{2}\pi x})^2} dx = \frac{1}{2}\pi - 1$ V. T. 97, N. 8.

11) $\int Arctg\left(\frac{e^{qx} - e^{px}}{1 + e^{(p+q)x}}\right)\frac{dx}{x} = \frac{\pi}{4} l\frac{q}{p}$ (VIII, 279).

12) $\int\left(\frac{Arctg\,q x}{1 - e^{-qrx}} - \frac{Arctg\,p x}{1 - e^{-prx}}\right)\frac{dx}{x} = \left(\frac{\pi}{2} - \frac{1}{r}\right) l\frac{q}{p}$ (VIII, 279).

13) $\int\left\{Arctg\,((e^{px})) - Arctg\,((e^{qx}))\right\}\frac{dx}{x} = \frac{\pi}{4} l\frac{q}{p}$ (VIII, 436).

14) $\int\left\{Arctg\,((r + e^{px})) - Arctg\,((r + e^{qx}))\right\}\frac{dx}{x} = Arccot(r+1)\,.\,l\frac{p}{q}$ (VIII, 436).

15) $\int\left\{e^{Arctg((px))} - e^{Arctg((qx))}\right\}\frac{dx}{x} = e^{\alpha\pi}(e^{\frac{1}{2}\pi} - 1)\, l\frac{p}{q}$ (VIII, 436). Où α indéterminé.

16) $\int e^{-px} Arctg\frac{x}{q}\frac{px + pq + 1}{(x+q)^2} dx = \frac{1}{2q}\left[-e^{pq} Ei(-pq) + Ci(pq).(Sin pq + Cos pq) + \right.$
$\left. + \left(Si(pq) - \frac{\pi}{2}\right)(Sin pq - Cos pq)\right]$ (IV, 517).

17) $\int e^{-px} Arctg\frac{x}{q}\frac{px - pq + 1}{(x-q)^2} dx = \frac{1}{2q}\left[-e^{-pq} Ei(pq) + Ci(pq).(Cos pq - Sin pq) + \right.$
$\left. + \left(Si(pq) - \frac{\pi}{2}\right)(Sin pq + Cos pq)\right]$ (IV, 517).

18) $\int e^{-px}\, Arctg\frac{x}{q}\,\frac{(pq+1)x+pq^2+2q}{(x+q)^2}\,x\,dx=\frac{1}{2p}\Big[pq\,e^{pq}\,Ei(-pq)+(pq+2)\Big\{Ci(pq).Sin\,pq-$

$-\Big(Si(pq)-\frac{\pi}{2}\Big)Cos\,pq\Big\}-pq\Big\{Ci(pq).Cos\,pq+\Big(Si(pq)-\frac{\pi}{2}\Big)Sin\,pq\Big\}\Big]$ (IV, 517).

19) $\int e^{-px}\, Arctg\frac{x}{q}\,\frac{(pq-1)x-pq^2+2q}{(x-q)^2}\,x\,dx=\frac{1}{2p}\Big[-pq\,e^{-pq}\,Ei(pq)+(pq-2)\Big\{Ci(pq).Sin\,pq-$

$-\Big(Si(pq)-\frac{\pi}{2}\Big)Cos\,pq\Big\}+pq\Big\{Ci(pq).Cos\,pq+\Big(Si(pq)-\frac{\pi}{2}\Big)Sin\,pq\Big\}\Big]$ (IV, 517).

20) $\int e^{-(Arctg\,x)^2}\,(Arctg\,x)^{2a}\,\frac{dx}{1+x^2}=\Big(\frac{\pi}{2}\Big)^{2a+1}\sum_0^\infty\frac{1}{(2a+2n+1)\,1^{n/1}}\Big(-\frac{\pi^2}{4}\Big)^n$ (IV, 518).

21) $\int e^{-px}\, Arctg\frac{x}{q}\,\frac{p(x^2+q^2)Arctg\frac{x}{q}-2q}{x^2+q^2}\,dx=0$ (IV, 517).

22) $\int e^{-px}\, Arctg\frac{x}{q}\,\frac{px^2+2x+pq^2}{(x^2+q^2)^2}\,dx=\frac{1}{2q^2}\Big[Ci(pq).Sin\,pq-\Big(Si(pq)-\frac{1}{2}\pi\Big)Cos\,pq+$

$+pq\Big\{Ci(pq).Cos\,pq+\Big(Si(pq)-\frac{\pi}{2}\Big)Sin\,pq\Big\}\Big]$ (IV, 518).

23) $\int e^{-px}\, Arctg\frac{x}{q}\,\frac{px^3+x^2+pq^2x-q^2}{(x^2+q^2)^2}\,dx=\frac{1}{2q}\Big[1-pq\Big\{Ci(pq).Sin\,pq-\Big(Si(pq)-\frac{\pi}{2}\Big)Cos\,pq\Big\}\Big]$

(IV, 518).

F. Algébrique;
Exponentielle;
Autre Fonction.

TABLE 400.

Lim. 0 et ∞.

1) $\int e^{-x}\, li(e^x).x^{p-1}\,dx=-\pi\,Cotp\pi.\Gamma(p)$ (VIII, 461).

2) $\int e^{x}\, li(e^{-x}).x^{p-1}\,dx=-\pi\,Cosecp\pi.\Gamma(p)$ (VIII, 459).

3) $\int li(e^{-x}).x^{p-1}\,dx=-\frac{1}{p}\Gamma(p)\,[0 \leq p \leq 1]$ (VIII, 460).

4) $\int e^{-px}\, li(e^{-x})\frac{dx}{\sqrt{x}}=-2\sqrt{\frac{\pi}{p}}.\,l\{\sqrt{p}+\sqrt{1+p}\}\,[0<p<1]$ (VIII, 460).

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5) $\int e^{qx}\, li(e^{-x})\frac{dx}{\sqrt{x}} = -2\,Arcsin(\sqrt{p}).\sqrt{\frac{\pi}{p}}\;[0<p<1]$ (VIII, 460).

6) $\int\left\{e^{-rx}\frac{\Gamma(px+q)\Gamma(rx+s)}{\Gamma\{(p+r)x+q+s\}}-e^{-tx}\frac{\Gamma\left(\frac{pt}{r}x+q\right)\Gamma(tx+s)}{\Gamma\left\{\left(\frac{p}{r}+1\right)tx+q+s\right\}}\right\}\frac{dx}{x}=\frac{\Gamma(q)\Gamma(s)}{\Gamma(q+s)}\,l\frac{p}{r}$

Winckler, Sitz. Ber. Wien. 21, 389.

F. Algébr. rat. ent.;
Logarithmique;
Circul. Directe de Log.

TABLE 401.

Lim. 0 et 1.

1) $\int Sin(q\,lx).x^{p-1}dx = \frac{-q}{p^2+q^2}$ V. T. 261, N. 1.

2) $\int Cos(q\,lx).x^{p-1}dx = \frac{p}{p^2+q^2}$ V. T. 261, N. 2.

3) $\int Sin(q\,lx).(lx)^{r-1}.x^{p-1}dx = \frac{(-1)^r}{(p^2+q^2)^{\frac{1}{2}r}}\Gamma(r)\,Sin\left(r\,Arctg\frac{q}{p}\right)$ V. T. 361, N. 9.

4) $\int Cos(q\,lx).(lx)^{r-1}.x^{p-1}dx = \frac{(-1)^{r-1}}{(p^2+q^2)^{\frac{1}{2}r}}\Gamma(r)\,Cos\left(r\,Arctg\frac{q}{p}\right)$ V. T. 361, N. 10.

5) $\int Sin^{2a}(lx).x^{p-1}\,dx = \frac{1^{2a/1}}{(p^2+2^2)(p^2+4^2)\ldots\{p^2+(2a)^2\}}\frac{1}{p}$ V. T. 262, N. 1.

6) $\int Sin^{2a+1}(lx).x^{p-1}dx = \frac{-1^{2a+1/1}}{(p^2+1^2)(p^2+3^2)\ldots\{p^2+(2a+1)^2\}}$ V. T. 262, N. 2.

7) $\int Cos^{2a}(lx).x^{p-1}dx = \frac{1}{p}\frac{1^{2a/1}}{(p^2+2^2)(p^2+4^2)\ldots\{p^2+(2a)^2\}}\left\{1+\frac{p^2}{1.2}+\frac{p^2}{1.2}\frac{p^2+2^2}{3.4}+\ldots+\right.$

$\left.+\frac{p^2(p^2+2^2)\ldots\{p^2+(2a-2)^2\}}{1^{2a/1}}\right\}$ V. T. 262, N. 3.

8) $\int Cos^{2a+1}(lx).x^{p-1}dx = p\frac{1^{2a+1/1}}{(p^2+1^2)(p^2+3^2)\ldots\{p^2+(2a+1)^2\}}\left\{1+\frac{p^2+1^2}{1.2.3}+\ldots+\right.$

$\left.+\frac{(p^2+1^2)(p^2+3^2)\ldots\{p^2+(2a-1)^2\}}{1^{2a+1/1}}\right\}$ V. T. 262, N. 4.

9) $\int Sin(q\,lx).l\,l\frac{1}{x}.x^{p-1}\,dx = \frac{1}{p^2+q^2}\left\{-p\,Arctg\frac{q}{p}+\frac{1}{2}q\,l(p^2+q^2)+q\,A\right\}$ V. T. 467, N. 1.

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10) $\int Cos(q\,lx).l\,l\frac{1}{x}.x^{p-1}\,dx = \frac{1}{p^2+q^2}\left\{q\,Arctg\frac{q}{p}+\frac{1}{2}p\,l(p^2+q^2)+p\,\mathrm{A}\right\}$ V. T. 467, N. 2.

11) $\int Cot(q\,lx).x^{p-1}\,dx = 4q\sum_1^\infty \frac{n}{p^2+4n^2q^2}$ V. T. 261, N. 8.

12) $\int Sin\{(q\,lx)^2\}.x^{2p-1}\,dx = \frac{1}{4q}\left\{Cos\left(\frac{p^2}{q^2}\right)+Sin\left(\frac{p^2}{q^2}\right)\right\}\sqrt{2\pi}-\frac{p}{q^2}\left\{Cos\left(\frac{p^2}{q^2}\right).\sum_0^\infty\frac{(-1)^n}{(4n+1)1^{2n|1}}\left(\frac{p}{q}\right)^{4n}+Sin\left(\frac{p^2}{q^2}\right).\sum_1^\infty\frac{(-1)^n}{(4n-1)1^{2n-1|1}}\left(\frac{p}{q}\right)^{4n-2}\right\}$ V. T. 262, N. 15.

13) $\int Cos\{(q\,lx)^2\}.x^{2p-1}\,dx = \frac{1}{4q}\left\{Cos\left(\frac{p^2}{q^2}\right)-Sin\left(\frac{p^2}{q^2}\right)\right\}\sqrt{2\pi}-\frac{p}{q^2}\left\{Sin\left(\frac{p^2}{q^2}\right).\sum_0^\infty\frac{(-1)^n}{(4n+1)1^{2n|1}}\left(\frac{p}{q}\right)^{4n}-Cos\left(\frac{p^2}{q^2}\right)\sum_1^\infty\frac{(-1)^n}{(4n-1)1^{2n-1|1}}\left(\frac{p}{q}\right)^{4n-2}\right\}$ V. T. 262, N. 16.

14) $\int Sin\{p^2-(lx)^2\}.x^{2p-1}dx = -\frac{\pi}{2\sqrt{2}}-p\sum_0^\infty\frac{(-p^4)^n\,Cos(2p^2)}{(4n+1)1^{2n|1}}-\frac{1}{p^2}\sum_1^\infty\frac{(-p^4)^n\,Sin(2p^2)}{(4n-1)1^{2n-1|1}}$
V. T. 401, N. 12, 13.

15) $\int Cos\{p^2-(lx)^2\}.x^{2p-1}dx = \frac{\pi}{2\sqrt{2}}-p\sum_0^\infty\frac{(-p^4)^n\,Sin(2p^2)}{(4n+1)1^{2n|1}}-\frac{1}{p^2}\sum_1^\infty\frac{(-p^4)^n\,Cos(2p^2)}{(4n-1)1^{2n-1|1}}$
V. T. 401, N. 12, 13.

16) $\int Sin^a(lx).x^{p-1}dx = \frac{(-1)^a-e^{p\pi}}{\Gamma\left(\frac{a+pi}{2}+1\right)\Gamma\left(\frac{a-pi}{2}+1\right)}\frac{\pi}{2}1^{a}$ [illegible] (IV, 520).

17) $\int Cos\left(q\sqrt{l\frac{1}{x}}\right).x^{p-1}dx = \frac{1}{p}+\frac{1}{2p}\sum_1^\infty\frac{(-1)^n}{n^{n|1}}\left(\frac{q^2}{p}\right)^n$ V. T. 362, N. 2.

18) $\int Sin(q\,lx).x^{p-1}\sqrt{l\frac{1}{x}}.dx = -\frac{1}{4}\sqrt{\left[\frac{2\pi}{(p^2+q^2)^3}\left\{-p^3+3pq^2+\sqrt{p^2+q^2}^{\,3}\right\}\right]}$ V. T. 394, N. 1.

19) $\int Cos(qlx).x^{p-1}\sqrt{l\frac{1}{x}}.dx = \frac{1}{4}\sqrt{\left[\frac{2\pi}{(p^2+q^2)^3}\left\{p^3-3pq^2+\sqrt{p^2+q^2}^{\,3}\right\}\right]}$ V. T. 394, N. 4.

20) $\int l\,Sin\left(q\,l\frac{1}{x}\right).x^{2p-1}dx = \frac{1}{2p}\,l\frac{1}{2}-\frac{p}{2}\sum_1^\infty\frac{1}{n}\,\frac{1}{p^2+n^2q^2}$ V. T. 467, N. 4.

21) $\int l\,Cos\left(q\,l\frac{1}{x}\right).x^{2p-1}\,dx = -\frac{1}{2p}\,l2+\frac{p}{2}\sum_1^\infty\frac{(-1)^{n-1}}{n}\,\frac{1}{p^2+n^2q^2}$ V. T. 467. N. 5.

22) $\int l\,Tang\left(q\,l\frac{1}{x}\right).x^{2p-1}\,dx = -p\sum_1^\infty\frac{1}{2n-1}\,\frac{1}{p^2+(2n-1)^2q^2}$ V. T. 467, N. 6.

1) $\int Sin(p\,lx)\frac{dx}{1+x} = \frac{\pi e^{p\pi}}{e^{2p\pi}-1} - \frac{1}{2p}$ V. T. 402, N. 9, 10.

2) $\int Sin(p\,lx)\frac{dx}{1-x} = -\frac{\pi}{2}\frac{e^{2p\pi}+1}{e^{2p\pi}-1} + \frac{1}{2p}$ V. T. 264, N. 2.

3) $\int Sin(p\,lx)\frac{x^{a-1}\,dx}{1-x} = -\frac{\pi}{2} + \frac{1}{2p} + \frac{\pi}{1-e^{2p\pi}} + \sum_0^a \frac{p}{p^2+(n+1)^2}$ V. T. 264, N. 8.

4) $\int Sin(p\,lx)\frac{x^{q-1}\,dx}{1-x} = \phi - \frac{1}{2p}Sin^2\phi + \sum_1^\infty (-1)^n \frac{Sin^{2n}\phi . Sin\,2n\phi}{2np^{2n}} B_{2n-1}$ V. T. 264, N. 12.

Où $Cot\phi = \frac{q-1}{p}$

5) $\int Sin(p\,lx)\frac{lx}{1+x^2}dx = \frac{1}{4}\pi^2 \frac{e^{\frac{1}{2}p\pi}-e^{-\frac{1}{2}p\pi}}{(e^{\frac{1}{2}p\pi}+e^{-\frac{1}{2}p\pi})^2}$ V. T. 364, N. 6.

6) $\int Cos(p\,lx)\frac{dx}{1+x^2} = \frac{\pi}{2}\frac{e^{\frac{1}{2}p\pi}}{e^{p\pi}+1}$ V. T. 264, N. 14.

7) $\int Sin(p\,lx)\frac{x^q-x^{-q}}{1+x^2}dx = \pi\,Sin\frac{1}{2}q\pi \frac{e^{\frac{1}{2}p\pi}-e^{-\frac{1}{2}p\pi}}{e^{p\pi}+2\,Cos\,q\pi+e^{-p\pi}}$ $[p^2<1, q^2<1]$ V. T. 265, N. 2.

8) $\int Cos(p\,lx)\frac{x^q+x^{-q}}{1+x^2}dx = \pi\,Cos\frac{1}{2}q\pi \frac{e^{\frac{1}{2}p\pi}+e^{-\frac{1}{2}p\pi}}{e^{p\pi}+2\,Cos\,q\pi+e^{-p\pi}}$ $[p^2<1, q^2<1]$ V. T. 265, N. 6.

9) $\int Sin(p\,lx)\frac{dx}{1-x^2} = \frac{\pi}{4}\frac{1-e^{p\pi}}{1+e^{p\pi}}$ V. T. 264, N. 6.

10) $\int Sin(p\,lx)\frac{x\,dx}{1-x^2} = \frac{\pi}{2}\frac{1+e^{p\pi}}{1-e^{p\pi}} + \frac{1}{2p}$ V. T. 264, N. 2.

11) $\int Sin(p\,lx)\frac{x^{q-1}}{1-x^2}dx = -\sum_1^\infty \frac{p}{(2n+q)^2+p^2}$ V. T. 264, N. 11.

12) $\int Sin(p\,lx)\frac{x^q+x^{-q}}{1-x^2}dx = -\frac{\pi}{2}\frac{e^{p\pi}-e^{-p\pi}}{e^{p\pi}+2\,Cos\,q\pi+e^{-p\pi}}$ $[q^2 \leqq 1]$ V. T. 265, N. 4.

13) $\int Cos(p\,lx)\frac{lx}{1-x^2}dx = \frac{1}{2}\pi^2\frac{e^{p\pi}}{(e^{p\pi}+1)^2}$ V. T. 364, N. 7.

14) $\int Cos(p\,lx)\frac{x^q-x^{-q}}{1-x^2}dx = \frac{-\pi\,Sin\,q\pi}{e^{p\pi}+2\,Cos\,q\pi+e^{-p\pi}}$ V. T. 265, N. 7.

15) $\int Sin^2(p\,lx)\frac{dx}{1+x^2} = \frac{\pi}{8}\frac{(e^{p\pi}-1)^2}{e^{2p\pi}+1}$ V. T. 264, N. 17.

16) $\int Cos^2(p\,lx)\frac{dx}{1+x^2} = \frac{\pi}{8}\frac{(e^{p\pi}+1)^2}{e^{2p\pi}+1}$ V. T. 264, N. 18.

F. Alg. rat. fract. à dén. binôme;
Logarithmique; TABLE 402, suite. Lim. 0 et 1.
Circul. Directe de Log.

17) $\int Sin(p\,l\,x) \frac{x^{q-1}}{1-x^q} dx = \frac{\pi}{2q} \frac{1+e^{\frac{2p\pi}{q}}}{1-e^{\frac{2p\pi}{q}}} + \frac{1}{2p}$ V. T. 264, N. 2.

18) $\int Sin(p\,l\,x) \frac{x^{q-1}}{1+x^q} dx = \frac{\pi}{q} \frac{1}{e^{\frac{p\pi}{q}} - e^{-\frac{p\pi}{q}}} - \frac{1}{2p}$ V. T. 264, N. 1.

19) $\int Sin(p\,l\,x) \frac{x^r + x^{-r}}{1-x^q} x^{q-1} dx = \frac{p}{p^2+r^2} - \frac{\pi}{q} \frac{e^{\frac{2p\pi}{q}} - e^{-\frac{2p\pi}{q}}}{e^{\frac{p\pi}{q}} - 2\,Cos\frac{2r\pi}{q} + e^{-\frac{p\pi}{q}}} [r<q]$ V. T. 265, N. 5.

20) $\int Cos(p\,l\,x) \frac{x^r - x^{-r}}{1-x^q} x^{q-1} dx = \frac{p}{p^2+r^2} - \frac{\pi}{q} \frac{Sin\frac{2r\pi}{q}}{e^{\frac{2p\pi}{q}} - 2\,Cos\frac{2r\pi}{q} + e^{-\frac{2p\pi}{q}}} [r<q]$ V. T. 265, N. 8.

F. Alg. rat. fract. à dén. $x(q^p + x^p)$;
Logarithmique; TABLE 403. Lim. 0 et 1.
Circ. Directe de Log.

1) $\int Sin(p\,l\,x) \frac{1-x^q}{1+x^q} \frac{dx}{x} = \frac{1}{q} \frac{-2\pi}{e^{\frac{p\pi}{q}} - e^{-\frac{p\pi}{q}}}$ V. T. 265, N. 1.

2) $\int Sin(p\,l\,x) \frac{1+x^q}{1-x^q} \frac{dx}{x} = \frac{\pi}{q} \frac{1+e^{\frac{2p\pi}{q}}}{1-e^{\frac{2p\pi}{q}}}$ V. T. 265, N. 3.

3) $\int Cos(p\,l\,x) \frac{1-x^q}{1+x^q} \frac{l\,x}{x} dx = \frac{2}{q}\pi^2 e^{-\frac{p\pi}{q}} \frac{1+e^{-\frac{2p\pi}{q}}}{\left(1-e^{-\frac{2p\pi}{q}}\right)^2}$ V. T. 364, N. 4.

4) $\int Cos(p\,l\,x) \frac{1+x^q}{1-x^q} \frac{l\,x}{x} dx = \frac{2}{q}\pi^2 e^{-\frac{2p\pi}{q}} \frac{1}{\left(1-e^{-\frac{2p\pi}{q}}\right)^2}$ V. T. 364, N. 3.

5) $\int \frac{Sin(p\,l\,x)}{x^q - x^{-q}} \frac{dx}{x} = \frac{\pi}{4q} \frac{e^{\frac{p\pi}{q}} - 1}{e^{\frac{p\pi}{q}} + 1} [p<q]$ V. T. 264, N. 6.

6) $\int \frac{Cos(p\,l\,x)}{x^q + x^{-q}} \frac{dx}{x} = \frac{\pi}{2q} \frac{1}{e^{\frac{p\pi}{2q}} + e^{-\frac{p\pi}{2q}}} [p<q]$ V. T. 264, N. 14.

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7) $\int \frac{x^p - x^{-p}}{x^q + x^{-q}} Sin(r\,lx)\frac{dx}{x} = \frac{\pi}{q}\frac{e^{\frac{r\pi}{2q}} - e^{-\frac{r\pi}{2q}}}{e^{\frac{r\pi}{q}} + 2\,Cos\frac{p\pi}{q} + e^{-\frac{r\pi}{q}}} Sin\frac{p\pi}{2q}\ [p < 2q]$ V. T. 265, N. 2.

8) $\int \frac{x^p + x^{-p}}{x^q - x^{-q}} Sin(r\,lx)\frac{dx}{x} = \frac{\pi}{2q}\frac{e^{\frac{r\pi}{q}} - e^{-\frac{r\pi}{q}}}{e^{\frac{r\pi}{q}} + 2\,Cos\frac{p\pi}{q} + e^{-\frac{r\pi}{q}}}\ [p < q]$ V. T. 265, N. 4.

9) $\int \frac{x^p + x^{-p}}{x^q + x^{-q}} Cos(r\,lx)\frac{dx}{x} = \frac{\pi}{q}\frac{e^{\frac{r\pi}{2q}} + e^{-\frac{r\pi}{2q}}}{e^{\frac{r\pi}{q}} + 2\,Cos\frac{p\pi}{q} + e^{-\frac{r\pi}{q}}} Cos\frac{p\pi}{2q}\ [p < 2q]$ V. T. 265, N. 6.

10) $\int \frac{x^p - x^{-p}}{x^q - x^{-q}} Cos(r\,lx)\frac{dx}{x} = \frac{\pi}{q}\frac{Sin\frac{p\pi}{q}}{e^{\frac{r\pi}{q}} + 2\,Cos\frac{p\pi}{q} + e^{-\frac{r\pi}{q}}}\ [p < q]$ V. T. 265, N. 7.

11) $\int \frac{Sin^2(p\,lx)}{x^q + x^{-q}}\ \frac{dx}{x} = \frac{\pi}{8q}\frac{\left(e^{\frac{p\pi}{q}} - 1\right)^2}{e^{\frac{2p\pi}{q}} + 1}$ V. T. 264, N. 17.

12) $\int \frac{Cos^2(p\,lx)}{x^q + x^{-q}}\ \frac{dx}{x} = \frac{\pi}{8q}\frac{\left(e^{\frac{p\pi}{q}} + 1\right)^2}{e^{\frac{2p\pi}{q}} + 1}$ V. T. 264, N. 18.

F. Alg. rat. fract. à autre dén.;
Logarithmique; **TABLE 404.** Lim. 0 et 1.
Circ. Directe de Log.

1) $\int Cos(p\,lx).\,l(1+x)\frac{dx}{x} = \frac{1}{2p^2} - \frac{\pi}{p}\frac{e^{p\pi}}{e^{2p\pi} - 1}$ V. T. 402, N. 1.

2) $\int Cos(p\,lx).\,l(1-x)\frac{dx}{x} = \frac{1}{2p^2} - \frac{\pi}{2p}\frac{e^{2p\pi} + 1}{e^{2p\pi} - 1}$ V. T. 402, N. 2.

3) $\int Cos(p\,lx).\,l(1-x^2)\frac{dx}{x} = \frac{1}{p^2} + \frac{\pi}{p}\frac{1 + e^{p\pi}}{1 - e^{p\pi}}$ V. T. 402, N. 9.

4) $\int Cos(p\,lx)\frac{x^{q-1}}{(1+x^q)^2}\,dx = \frac{p}{q^2}\frac{\pi}{e^{\frac{p\pi}{q}} - e^{-\frac{p\pi}{q}}}$ (IV, 522).

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5) $\int Sin(p\,lx)\frac{dx}{(1-x^2)x^{q+1}} = -\sum_1^\infty \frac{p}{(2n-q)^2+p^2}$ V. T. 264, N. 10.

6) $\int Cos(p\,lx)\frac{dx}{1+2x\,Cos\lambda+x^2} = \frac{\pi}{2}\,Cosec\lambda\,\frac{e^{p\lambda}-e^{-p\lambda}}{e^{p\pi}-e^{-p\pi}}\,[\lambda \leqq \pi]$ V. T. 267, N. 3.

7) $\int Sin(q\,lx)\frac{x^{2p}-1}{1+2x^{2p}\,Cos(2q\,lx)+x^{4p}}x^{p-1}\,dx = \frac{\pi}{4}\,\frac{q}{p^2+q^2}$ V. T. 267, N. 7.

8) $\int Cos(q\,lx)\frac{x^{2p}+1}{1+2x^{2p}\,Cos(2q\,lx)+x^{4p}}x^{p-1}\,dx = \frac{\pi}{4}\,\frac{p}{p^2+q^2}$ V. T. 267, N. 8.

9) $\int Cos(q\,lx)\frac{1}{x^p+2\,Cos\lambda+x^{-p}}\,\frac{dx}{x} = \frac{\pi}{2p}\,Cosec\lambda\,\frac{e^{\frac{q\lambda}{p}}-e^{-\frac{q\lambda}{p}}}{e^{\frac{q\pi}{p}}-e^{-\frac{q\pi}{p}}}\,[\lambda<\pi]$ V. T. 404, N. 6.

10) $\int Sin(p\,lx)\frac{1-x^2}{1+2x\,Cos\lambda+x^2}\,\frac{dx}{x} = -\pi\,\frac{e^{p\lambda}+e^{-p\lambda}}{e^{p\pi}-e^{-p\pi}}$ V. T. 267, N. 1.

11) $\int Cos(p\,lx)\frac{1+x^2}{1+2x\,Cos\lambda+x^2}\,\frac{dx}{x} = -\pi\,Cot\lambda\,\frac{e^{p\lambda}-e^{-p\lambda}}{e^{p\pi}-e^{-p\pi}}$ V. T. 267, N. 5.

12) $\int \frac{Cos(q\,lx)}{x^p+\left(a+\frac{1}{a}\right)+x^{-p}}\,\frac{dx}{x} = \frac{\lambda}{p}\,\frac{a\pi}{1-a^2}\,\frac{Sin\left(\frac{q}{p}\,la\right)}{e^{\frac{q\pi}{p}}-e^{\frac{-q\pi}{p}}}$ (IV, 523).

13) $\int Cos(p\,lx)\frac{dx}{(1+x)\sqrt{x}} = \frac{\pi}{e^{p\pi}+e^{-p\pi}}$ V. T. 264, N. 14.

F. Alg. rat.;
Log. en dén. $(lx)^n$;
Circ. Directe.

TABLE 405.

Lim. 0 et 1.

1) $\int Sin(p\,lx).x^a\,\frac{dx}{lx} = Arctg\left(\frac{p}{a+1}\right)$ V. T. 365, N. 1.

2) $\int Sin\left(q\sqrt{l\frac{1}{x}}\right).x^{p-1}\,\frac{dx}{lx} = q\sqrt{\frac{\pi}{p}}\,.\sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)1^{n/1}}\left(\frac{q^2}{4p}\right)^n$ V. T. 365, N. 21.

3) $\int Sin(lx)\,\frac{1+x}{lx}\,x\,dx = \frac{1}{4}\pi$ (IV, 523).

4) $\int \{x^{p-1} \, Sin\,(r\,lx) - x^{q-1} \, Sin\,(s\,lx)\} \frac{dx}{lx} = Arctg \left(\frac{qr - ps}{pq + rs}\right)$ V. T. 367, N. 11.

5) $\int Cos(q\,lx).x^{p-1} \frac{dx}{lx} = \infty$ V. T. 365, N. 3.

6) $\int \{x^{p-1} \, Cos\,(r\,lx) - x^{q-1} \, Cos\,(s\,lx)\} \frac{dx}{lx} = \frac{1}{2} \, l \frac{p^2 + r^2}{q^2 + s^2}$ V. T. 367, N. 12.

7) $\int Sin^2\,(q\,lx).x^{p-1} \frac{dx}{lx} = \frac{1}{4} \, l \frac{p^2}{p^2 + 4q^2}$ V. T. 365, N. 4.

8) $\int Sin\,rx.(x^{p-1} - x^{q-1}) \frac{dx}{lx} = \sum_1^\infty \frac{(-1)^n}{1^{2n+1/1}} r^{2n+1} \, l \frac{p + 2n + 1}{q + 2n + 1}$ (VIII, 492).

9) $\int Cos\,rx.(x^{p-1} - x^{q-1}) \frac{dx}{lx} = l \frac{p}{q} + \sum_1^\infty \frac{(-1)^n}{1^{2n/1}} r^{2n} \, l \frac{p + 2n}{q + 2n}$ (VIII, 492).

10) $\int Sin^2\,(q\,lx).x^{p-1} \frac{dx}{(lx)^2} = q \, Arctg \frac{2q}{p} - \frac{p}{4} \, l \frac{p^2 + 4q^2}{p^2}$ V. T. 368, N. 2.

11) $\int \{x^{p-1} \, Sin\,(r\,lx) - x^{q-1} \, Sin\,(s\,lx)\} \frac{dx}{(lx)^{a+1}} = (-1)^{a-1} \frac{\Gamma(1-a)}{a} \Big\{ (q^2 + s^2)^{\frac{1}{2}a} Sin\left(a \, Arctg \frac{s}{q}\right) -$
$- (p^2 + r^2)^{\frac{1}{2}a} \, Sin\left(a \, Arctg \frac{r}{p}\right) \Big\}$ V. T. 371, N. 6.

12) $\int \{x^{p-1} \, Cos\,(r\,lx) - x^{q-1} \, Cos\,(s\,lx)\} \frac{dx}{(lx)^{a+1}} = (-1)^{a-1} \frac{\Gamma(1-a)}{a} \Big\{ (q^2 + s^2)^{\frac{1}{2}a} Cos\left(a \, Arctg \frac{s}{q}\right) -$
$- (p^2 + r^2)^{\frac{1}{2}a} \, Cos\left(a \, Arctg \frac{r}{p}\right) \Big\}$ V. T. 371, N. 7.

13) $\int \frac{Sin\,(2p\,lx)}{lx} \frac{dx}{1 + x^2} = Arctg(e^{p\pi})$ V. T. 387, N. 1.

14) $\int \frac{Cos\,(2p\,lx)}{lx} \frac{dx}{1 - x^2} = -\frac{1}{2} \, l(e^{p\pi} + e^{-p\pi})$ V. T. 387, N. 2.

15) $\int \frac{Cos\,(2p\,lx)}{x\,lx} \frac{x^q - x^{-q}}{x^q + x^{-q}} \, dx = l \frac{1 - e^{-\frac{p\pi}{q}}}{1 + e^{-\frac{p\pi}{q}}}$ V. T. 387, N. 8.

16) $\int \frac{Cos\,(2p\,lx)}{x\,lx} \frac{x^q + x^{-q}}{x^q - x^{-q}} \, dx = -l\left(e^{\frac{p\pi}{q}} - e^{-\frac{p\pi}{q}}\right)$ V. T. 387, N. 9.

F. Alg. rat.;
Log. en dén. $\sqrt{-lx}$;
Circul. Dir. de Log.

TABLE 406.

Lim. 0 et 1.

1) $\int Sin(p\,lx).x^{q-1}\frac{dx}{\sqrt{l\frac{1}{x}}} = -\sqrt{\left\{\frac{\pi}{2}\,\frac{\sqrt{p^2+q^2}-q}{p^2+q^2}\right\}}$ V. T. 395, N. 1.

2) $\int Cos(p\,lx).x^{q-1}\frac{dx}{\sqrt{l\frac{1}{x}}} = \sqrt{\left\{\frac{\pi}{2}\,\frac{q+\sqrt{p^2+q^2}}{p^2+q^2}\right\}}$ V. T. 395, N. 2.

3) $\int Sin\left(\frac{2p^2}{lx}\right).x^{q-1}\frac{dx}{\sqrt{l\frac{1}{x}}} = -e^{-2p\sqrt{q}}\,Sin(2p\sqrt{q}).\sqrt{\frac{\pi}{q}}$ V. T. 263, N. 12.

4) $\int Cos\left(\frac{2p^2}{lx}\right).x^{q-1}\frac{dx}{\sqrt{l\frac{1}{x}}} = e^{-2p\sqrt{q}}\,Cos(2p\sqrt{q}).\sqrt{\frac{\pi}{q}}$ V. T. 263, N. 13.

5) $\int Sin\left(p\sqrt{l\frac{1}{x}}\right).x^{q-1}\frac{dx}{\sqrt{l\frac{1}{x}}} = \frac{2}{p}\sum_0^\infty\frac{(-1)^n}{(n+2)^{n+1/2}}\left(\frac{p^2}{q}\right)^{n+1}$ V. T. 263, N. 1.

6) $\int Cos\left(p\sqrt{l\frac{1}{x}}\right).x^{q-1}\frac{dx}{\sqrt{l\frac{1}{x}}} = e^{-\frac{p^2}{4q}}\sqrt{\frac{\pi}{q}}$ V. T. 263, N. 2.

7) $\int Cot\left(p\sqrt{l\frac{1}{x}}\right).x^{q-1}\frac{dx}{\sqrt{l\frac{1}{x}}} = 2\sqrt{\frac{\pi}{q}}.\sum_1^\infty e^{-n^2\frac{p^2}{q}}$ V. T. 263, N. 7.

F. Alg. rat. fract.;
Log. en dén. $q^2 \pm (lx)^2$;
Circul. Dir. de Log.

TABLE 407.

Lim. 0 et 1.

1) $\int\frac{Sin(2p\,lx)}{\frac{1}{4}\pi^2+(lx)^2}\,\frac{dx}{1-x^2} = -\frac{e^{p\pi}+e^{-p\pi}}{\pi}Arctg(e^{-p\pi})+\frac{1}{2}e^{-p\pi}$ V. T. 389, N. 2.

2) $\int\frac{Sin(p\,lx)}{\pi^2+(lx)^2}\,\frac{dx}{1-x^2} = \frac{1}{4}p\,e^{p\pi}-\frac{e^{p\pi}-e^{-p\pi}}{4\pi}l(1+e^{-p\pi})$ V. T. 389, N. 4.

3) $\int\frac{Sin(p\,lx)}{\pi^2+(lx)^2}\,\frac{1+x^2}{1-x^2}dx = -\frac{p}{2}e^{-p\pi}+\frac{e^{p\pi}-e^{-p\pi}}{2\pi}l(1-e^{-p\pi})$ V. T. 389, N. 5.

4) $\int\frac{Sin(p\,lx)}{\pi^2+(lx)^2}\,\frac{x^q+x^{-q}}{1-x^2}dx = \frac{1}{2}e^{-p\pi}(p\,Cos\,q\pi+q\,Sin\,q\pi)-\frac{e^{p\pi}-e^{-p\pi}}{4\pi}Cos\,q\pi.$

$l(1+2e^{-p\pi}Cos\,q\pi+e^{-2p\pi})-\frac{e^{p\pi}+e^{-p\pi}}{2\pi}Sin\,q\pi.Arctg\left(\frac{Sin\,q\pi}{e^{p\pi}+Cos\,q\pi}\right)$ $[q^2 \leqq 1]$

V. T. 389, N. 9.

5) $\int \frac{Sin\,(p\,l\,x)}{\pi^2+(lx)^2}\,\frac{x^q-x^{-q}}{1-x^2}\,lx.dx = -\frac{\pi}{2}\,e^{-p\pi}\,(p\,Sin\,q\pi - q\,Cos\,q\pi) + \frac{e^{p\pi}-e^{-p\pi}}{4}\,Sin\,q\pi\,.$

$l(1+2\,e^{-p\pi}\,Cos\,q\pi + e^{-2p\pi}) - \frac{e^{p\pi}+e^{-p\pi}}{2}\,Cos\,q\pi\,.\,Arctg\left(\frac{Sin\,q\pi}{e^{p\pi}+Cos\,q\pi}\right)$ $[q^2<1]$

V. T. 389, N. 10.

6) $\int \frac{Sin\,(p\,l\,x)}{r^2+(lx)^2}\,\frac{x^q+x^{-q}}{1-x^2}\,dx = -\frac{\pi}{2r^2} + \frac{\pi\,e^{-pr}\,Cos\,qr}{2\,r\,Sin\,r} + \pi\sum_1^\infty(-1)^n\,\frac{e^{-np\pi}\,Cos\,nq\pi}{n^2\pi^2-r^2}$ $[0 \leqq q \leqq 1]$

V. T. 389, N. 21.

7) $\int \frac{Sin\,(p\,l\,x)}{r^2+(lx)^2}\,\frac{x^q-x^{-q}}{1-x^2}\,lx.dx = -\frac{\pi\,e^{-pr}\,Sin\,qr}{r\,Sin\,r} + \pi^2\sum_1^\infty(-1)^{n-1}\,\frac{n\,e^{-np\pi}\,Sin\,nq\pi}{n^2\pi^2-r^2}$

V. T. 389, N. 23.

8) $\int \frac{Cos\,(p\,l\,x)}{\pi^2+(lx)^2}\,\frac{lx}{1-x^2}\,dx = \frac{1}{4} - \frac{1}{4}p\pi\,e^{-p\pi} - \frac{e^{p\pi}+e^{-p\pi}}{4}\,l(1+e^{-p\pi})$ V. T. 389, N. 14.

9) $\int \frac{Cos\,(p\,l\,x)}{\pi^2+(lx)^2}\,\frac{x^q-x^{-q}}{1-x^2}\,dx = \frac{1}{2}\,e^{-p\pi}\,(q\,Cos\,q\pi - p\,Sin\,q\pi) - \frac{e^{p\pi}+e^{-p\pi}}{4\pi}\,Sin\,q\pi\,.$

$l(1+2\,e^{-p\pi}\,Cos\,q\pi + e^{-2p\pi}) + \frac{e^{p\pi}-e^{-p\pi}}{2\pi}\,Cos\,q\pi\,.\,Arctg\left(\frac{Sin\,q\pi}{e^{p\pi}+Cos\,q\pi}\right)$ $[q^2<1]$

V. T. 389, N. 20.

10) $\int \frac{Cos\,(p\,l\,x)}{\pi^2+(lx)^2}\,\frac{x^q+x^{-q}}{1-x^2}\,lx.dx = \frac{1}{2} - \frac{\pi}{2}\,e^{-p\pi}\,(p\,Cos\,q\pi + q\,Sin\,q\pi) - \frac{e^{p\pi}+e^{-p\pi}}{4}\,Cos\,q\pi\,.$

$l(1+2\,e^{-p\pi}\,Cos\,q\pi + e^{-2p\pi}) - \frac{e^{p\pi}-e^{-p\pi}}{2}\,Sin\,p\pi\,.\,Arctg\left(\frac{Sin\,q\pi}{e^{p\pi}+Cos\,q\pi}\right)$ $[q^2 \leqq 1]$

V. T. 389, N. 19.

11) $\int \frac{Cos\,(p\,l\,x)}{r^2+(lx)^2}\,\frac{x^q-x^{-q}}{1-x^2}\,dx = -\frac{\pi\,e^{-pr}\,Sin\,qr}{2\,r\,Sin\,r} - \pi\sum_1^\infty(-1)^n\,\frac{e^{-np\pi}\,Sin\,nq\pi}{n^2\pi^2-r^2}$ $[0<q<1]$

V. T. 389, N. 22.

12) $\int \frac{Cos\,(p\,l\,x)}{r^2+(lx)^2}\,\frac{x^q+x^{-q}}{1-x^2}\,lx.dx = -\frac{\pi\,e^{-pr}\,Cos\,qr}{2\,Sin\,r} + \pi^2\sum_1^\infty(-1)^{n-1}\,\frac{n\,e^{-np\pi}\,Cos\,nq\pi}{n^2\pi^2-r^2}$

V. T. 389, N. 24.

13) $\int \frac{Sin\,(2\,p\,l\,x)}{\frac{1}{4}\pi^2+(lx)^2}\,\frac{1-x}{1+x}\,\frac{dx}{x} = e^{p\pi} + \frac{e^{p\pi}-e^{-p\pi}}{\pi}\,l\,\frac{e^{p\pi}-1}{e^{p\pi}+1} - 2\,\frac{e^{p\pi}+e^{-p\pi}}{\pi}\,Arctg\,(e^{p\pi})$

V. T. 388, N. 4.

14) $\int \frac{Sin\,(2\,p\,l\,x)}{\frac{1}{4}\pi^2+(lx)^2}\,\frac{1+x}{1-x}\,\frac{dx}{x} = e^{-p\pi} + \frac{e^{p\pi}-e^{-p\pi}}{\pi}\,l\,\frac{e^{p\pi}-1}{e^{p\pi}+1} - 2\,\frac{e^{p\pi}+e^{-p\pi}}{\pi}\,Arctg\,(e^{-p\pi})$

V. T. 389, N. 3.

15) $\int \frac{Sin(plx)}{\pi^2+(lx)^2} \frac{1-x}{1+x} \frac{dx}{x} = \frac{e^{p\pi}-e^{-p\pi}}{2\pi} l(1-e^{-2p\pi}) - pe^{-p\pi}$ V. T. 388, N. 3.

16) $\int \frac{Sin(plx)}{\pi^2+(lx)^2} \frac{1+x}{1-x} \frac{dx}{x} = \frac{e^{p\pi}-e^{-p\pi}}{2\pi} l\frac{e^{p\pi}-1}{e^{p\pi}+1}$ V. T. 389, N. 6.

17) $\int \frac{Cos(2plx)}{\frac{1}{4}\pi^2+(lx)^2} \frac{1-x}{1+x} \frac{lx}{x} dx = \frac{\pi}{2} e^{-p\pi} + \frac{e^{p\pi}+e^{-p\pi}}{2} l\frac{e^{p\pi}-1}{e^{p\pi}+1} - (e^{p\pi}-e^{-p\pi}) Arctg(e^{p\pi})$

V. T. 388, N. 8.

18) $\int \frac{Cos(2plx)}{\frac{1}{4}\pi^2+(lx)^2} \frac{1+x}{1-x} \frac{lx}{x} dx = 2 - \frac{\pi}{2} e^{-p\pi} + \frac{e^{p\pi}+e^{-p\pi}}{2} l\frac{e^{p\pi}-1}{e^{p\pi}+1} - (e^{p\pi}-e^{-p\pi}) Arctg(e^{-p\pi})$

V. T. 389, N. 13.

19) $\int \frac{Cos(plx)}{\pi^2+(lx)^2} \frac{1+x^2}{1-x^2} \frac{lx}{x} dx = \frac{1}{2} + \frac{\pi}{2} pe^{-p\pi} + \frac{e^{p\pi}+e^{-p\pi}}{2} l(1-e^{-p\pi})$ V. T. 389, N. 15.

20) $\int \frac{Cos(plx)}{\pi^2+(lx)^2} \frac{1+x}{1-x} \frac{lx}{x} dx = 1 + \frac{e^{p\pi}+e^{-p\pi}}{2} l\frac{e^{p\pi}-1}{e^{p\pi}+1}$ V. T. 389, N. 16.

21) $\int \frac{Sin(lx)}{x^q+2\,Cos(lx)+x^{-q}} \frac{lx}{\pi^2-(lx)^2} \frac{dx}{x} = \frac{1}{2q} - \frac{1}{2} Arccot\, q$ V. T. 390, N. 1.

22) $\int \frac{Sin(lx)}{x^q-2\,Cos(lx)+x^{-q}} \frac{lx}{\pi^2-(lx)^2} \frac{dx}{x} = \frac{1}{2} Arccot\, q - \frac{1}{2} \frac{q}{1+q^2}$ V. T. 390, N. 2.

23) $\int \frac{Cos(plx)}{\pi^2+(lx)^2} \frac{1+x^2}{1-x^2} \frac{dx}{x\,lx} = \frac{-1}{2\pi^2} \frac{1-p\pi+p\pi e^{-pq}}{1-e^{-p\pi}} - \frac{(e^{\frac{1}{2}p\pi}-e^{-\frac{1}{2}p\pi})^2}{2\pi^2} l(1-e^{-p\pi})$

V. T. 390, N. 5.

24) $\int \frac{Sin(lx)}{x^{2q}-2\,Cos(2lx)+x^{-2q}} \frac{x^q+x^{-q}}{\pi^2-(lx)^2} lx \frac{dx}{x} = \frac{1}{2q} \frac{1}{1+q^2}$ V. T. 390, N. 3.

25) $\int \frac{Sin(2lx)}{x^{2q}-2\,Cos(2lx)+x^{-2q}} \frac{lx}{\pi^2-(lx)^2} \frac{dx}{x} = \frac{1}{4q} \frac{1+2q^2}{1+q^2} - \frac{1}{2} Arctg\frac{1}{q}$ V. T. 390, N. 4.

F. Alg. irrat. fract.;
Log. en dén. $q^2 \pm (lx)^2$; TABLE 408. Lim. 0 et 1.
Circul. Dir. de Log.

1) $\int \frac{Sin(2plx)}{\frac{1}{4}\pi^2+(lx)^2} \frac{lx}{1+x} \frac{dx}{\sqrt{x}} = \frac{\pi}{2\sqrt{2}} e^{-p\pi} + \frac{e^{p\pi}-e^{-p\pi}}{4\sqrt{2}} l\frac{e^{p\pi}+\sqrt{2}+e^{-p\pi}}{e^{p\pi}-\sqrt{2}+e^{-p\pi}} -$

$- \frac{e^{p\pi}+e^{-p\pi}}{2\sqrt{2}} Arctg\left(\frac{\sqrt{2}}{e^{p\pi}-e^{-p\pi}}\right)$ V. T. 388, N. 1.

2) $\int \frac{Sin(plx)}{\pi^2+(lx)^2} \frac{lx}{1+x} \frac{dx}{\sqrt{x}} = \frac{1}{2} p\pi e^{-p\pi} - \frac{e^{p\pi}-e^{-p\pi}}{4} l(1+e^{-2p\pi})$ V. T. 388, N. 2.

3) $\int \frac{Sin(2plx)}{\frac{1}{4}\pi^2+(lx)^2} \frac{1}{1-x} \frac{dx}{\sqrt{x}} = \frac{e^{-p\pi}}{\pi\sqrt{2}} + \frac{e^{p\pi}-e^{-p\pi}}{2\pi\sqrt{2}} l \frac{e^{p\pi}-\sqrt{2}+e^{-p\pi}}{e^{p\pi}+\sqrt{2}+e^{-p\pi}} - \frac{e^{p\pi}+e^{-p\pi}}{\pi\sqrt{2}}$
$Arctg\left(\frac{\sqrt{2}}{e^{p\pi}-e^{-p\pi}}\right)$ V. T. 389, N. 1.

4) $\int \frac{Sin(plx)}{\pi^2+(lx)^2} \frac{1}{1-x} \frac{dx}{\sqrt{x}} = \frac{1}{4} e^{-p\pi} - \frac{e^{p\pi}+e^{-p\pi}}{2\pi} Arctg(e^{-p\pi})$ V. T. 389, N. 2.

5) $\int \frac{Sin(plx)}{\pi^2+(lx)^2} \frac{x^q+x^{-q}}{1-x} \frac{dx}{\sqrt{x}} = \frac{1}{2} e^{-p\pi} Cos\, q\pi + \frac{e^{p\pi}-e^{-p\pi}}{4\pi} Sin\, q\pi . l \frac{e^{p\pi}-2\, Sin\, q\pi+e^{-p\pi}}{e^{p\pi}+2\, Sin\, q\pi+e^{-p\pi}} -$
$- \frac{e^{p\pi}+e^{-p\pi}}{2\pi} Cos\, q\pi . Arctg\left(\frac{2\, Cos\, q\pi}{e^{p\pi}-e^{-p\pi}}\right) \left[q^2 \leq \frac{1}{4}\right]$ V. T. 389, N. 7.

6) $\int \frac{Sin(plx)}{\pi^2+(lx)^2} \frac{x^q-x^{-q}}{1-x} \frac{dx}{\sqrt{x}} = -\frac{1}{2} e^{-p\pi} Sin\, q\pi + \frac{e^{p\pi}-e^{-p\pi}}{4\pi} Cos\, q\pi . l \frac{1-2e^{-p\pi} Sin\, q\pi+e^{-2p\pi}}{1+2e^{-p\pi} Sin\, q\pi+e^{-2p\pi}} +$
$+ \frac{e^{p\pi}+e^{-p\pi}}{2\pi} Sin\, q\pi . Arctg\left(\frac{2\, Cos\, q\pi}{e^{p\pi}-e^{-p\pi}}\right) \left[q^2 < \frac{1}{4}\right]$ V. T. 389, N. 8.

7) $\int \frac{Cos(2plx)}{\frac{1}{4}\pi^2+(lx)^2} \frac{1}{1+x} \frac{dx}{\sqrt{x}} = \frac{1}{2} e^{-p\pi}\sqrt{2} - \frac{e^{p\pi}+e^{-p\pi}}{2\pi\sqrt{2}} l \frac{1+e^{-p\pi}\sqrt{2}+e^{-2p\pi}}{1-e^{-p\pi}\sqrt{2}+e^{-2p\pi}} + \frac{e^{p\pi}-e^{-p\pi}}{\pi\sqrt{2}}$
$Arctg\left(\frac{\sqrt{2}}{e^{p\pi}-e^{-p\pi}}\right)$ V. T. 388, N. 5.

8) $\int \frac{Cos(plx)}{\pi^2+(lx)^2} \frac{1}{1+x} \frac{dx}{\sqrt{x}} = \frac{1}{2} p e^{-p\pi} + \frac{e^{p\pi}+e^{-p\pi}}{4\pi} l(1+e^{-2p\pi})$ V. T. 388, N. 6.

9) $\int \frac{Cos(plx)}{\pi^2+(lx)^2} \frac{1+\sqrt{x}}{1-\sqrt{x}} \frac{lx}{\sqrt{x}} dx = 2 - \frac{\pi}{2} e^{-p\pi} + \frac{e^{p\pi}+e^{-p\pi}}{2} l \frac{1-e^{-p\pi}}{1+e^{-p\pi}} - (e^{p\pi}-e^{-p\pi})$
$Arctg(e^{-p\pi})$ V. T. 389, N. 13.

10) $\int \frac{Cos(plx)}{\pi^2+(lx)^2} \frac{lx}{1-x} \frac{dx}{\sqrt{x}} = \frac{1}{2} - \frac{e^{p\pi}-e^{-p\pi}}{2} Arctg(e^{-p\pi}) - \frac{\pi}{4} e^{-p\pi}$ V. T. 389, N. 11.

11) $\int \frac{Cos(plx)}{\pi^2+(lx)^2} \frac{1-\sqrt{x}}{1+\sqrt{x}} \frac{lx}{\sqrt{x}} dx = \frac{\pi}{2} e^{p\pi} + \frac{e^{p\pi}+e^{-p\pi}}{2} l \frac{1-e^{-p\pi}}{1+e^{-p\pi}} - (e^{p\pi}-e^{-p\pi}) Arctg(e^{p\pi})$
V. T. 388, N. 8.

12) $\int \frac{Cos(plx)}{\pi^2+(lx)^2} \frac{x^q-x^{-q}}{1-x} \frac{dx}{\sqrt{x}} = -e^{-p\pi} Sin\, q\pi + \frac{e^{p\pi}+e^{-p\pi}}{2\pi} Cos\, q\pi . l \frac{e^{p\pi}+2\, Sin\, q\pi+e^{-p\pi}}{e^{p\pi}-2\, Sin\, q\pi+e^{-p\pi}} -$
$- \frac{e^{p\pi}-e^{-p\pi}}{\pi} Sin\, q\pi . Arctg\left(\frac{2\, Cos\, q\pi}{e^{p\pi}-e^{-p\pi}}\right) \left[q^2 < \frac{1}{4}\right]$ V. T. 389, N. 18.

F. Alg. irrat. fract.;
Log. en dén. $q^2 \pm (lx)^2$; TABLE 408, suite. Lim. 0 et 1.
Circul. Dir. de Log.

13) $$\int \frac{Cos(p\,lx)}{\pi^2+(lx)^2}\,\frac{x^q+x^{-q}}{1-x}\,\frac{lx}{\sqrt{x}}dx = 1-\frac{\pi}{2}e^{-p\pi}Cos\,q\pi+\frac{e^{p\pi}+e^{-p\pi}}{4}Sin\,q\pi . l\frac{e^{p\pi}-2\,Sin\,q\pi+e^{-p\pi}}{e^{p\pi}+2\,Sin\,q\pi+e^{-p\pi}} -$$
$$-\frac{e^{p\pi}-e^{-p\pi}}{2}Cos\,q\pi . Arctg\left(\frac{2\,Cos\,q\pi}{e^{p\pi}-e^{-p\pi}}\right)\left[q^2 \leqq \frac{1}{4}\right]$$ V. T. 389, N. 17.

F. Alg. rat. fract. à dén. x;
Log. $l(p+Cos\,x), l(p+Cos^2 x)$; TABLE 409. Lim. 0 et ∞.
Circul. Directe rat.

1) $\int l(1\pm p\,Cos\,2x) . Sin\,x\frac{dx}{x} = \frac{\pi}{2}l\frac{1+\sqrt{1-p^2}}{2}\;[p^2<1]$ (VIII, 398).

2) $\int l(1\pm p\,Cos\,2x) . Tg\,x\frac{dx}{x} = \frac{\pi}{2}l\frac{1+\sqrt{1-p^2}}{2}\;[p^2<1]$ (VIII, 398).

3) $\int l(1\pm p\,Cos\,4x) . Tg\,x\frac{dx}{x} = \frac{\pi}{2}l\frac{1+\sqrt{1-p^2}}{2}\;[p^2<1]$ (VIII, 398).

4) $\int l(q\pm Cos\,2x) . Sin\,x\frac{dx}{x} = \frac{\pi}{2}l\frac{q+\sqrt{q^2-1}}{2}\;[q^2>1]$ (VIII, 398).

5) $\int l(q\pm Cos\,2x) . Tg\,x\frac{dx}{x} = \frac{\pi}{2}l\frac{q+\sqrt{q^2-1}}{2}\;[q^2>1]$ (VIII, 398).

6) $\int l(q\pm Cos\,4x) . Tg\,x\frac{dx}{x} = \frac{\pi}{2}l\frac{q+\sqrt{q^2-1}}{2}\;[q^2>1]$ (VIII, 398).

7) $\int l(1\pm p\,Cos\,2x)\frac{Sin\,x}{Cos\,2x}\,\frac{dx}{x} = \frac{\pi}{2}Arcsin\,p\;[p^2<1]$ (VIII, 399).

8) $\int l(1\pm p\,Cos\,2x)\frac{Tg\,x}{Cos\,2x}\,\frac{dx}{x} = \frac{\pi}{2}Arcsin\,p\;[p^2<1]$ (VIII, 399).

9) $\int l(1\pm p\,Cos\,4x)\frac{Tg\,x}{Cos\,4x}\,\frac{dx}{x} = \frac{\pi}{2}Arcsin\,p\;[p^2<1]$ (VIII, 399).

10) $\int l(1+p\,Cos^2x) . Sin\,x\frac{dx}{x} = \pi\,l\frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

11) $\int l(1+p\,Cos^2x) . Sin\,x . Cos\,x\frac{dx}{x} = \frac{\pi}{4}\frac{\sqrt{1+p}-1}{\sqrt{1+p}+1}+\frac{\pi}{2}l\frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

12) $\int l(1+p\,Cos^2x) . Sin^3x\frac{dx}{x} = \frac{\pi}{4}\,\frac{1-\sqrt{1+p}}{1+\sqrt{1+p}}+\frac{\pi}{2}l\frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

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F. Alg. rat. fract. à dén. x;
Log. $l(p+Cos x), l(p+Cos^2 x)$; **TABLE 409**, suite. Lim. 0 et ∞.
Circul. Directe rat.

13) $\int l(1+p Cos^2 x) . Sin x . Cos^2 x \frac{dx}{x} = \frac{\pi}{4} \frac{\sqrt{1+p}-1}{\sqrt{1+p}+1} + \frac{\pi}{2} l \frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

14) $\int l(1+p Cos^2 x) . Sin^2 x . Tg x \frac{dx}{x} = \frac{\pi}{4} \frac{1-\sqrt{1+p}}{1+\sqrt{1+p}} + \frac{\pi}{2} l \frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

15) $\int l(1+p Cos^2 x) . Tg x \frac{dx}{x} = \pi l \frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

16) $\int l(1+p Cos^2 2x) . Sin^3 x . Cos x \frac{dx}{x} = \frac{\pi}{16} \frac{1-\sqrt{1+p}}{1+\sqrt{1+p}} + \frac{\pi}{8} l \frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

17) $\int l(1+p Cos^2 2x) . Cos^2 2x . Tg x \frac{dx}{x} = \frac{\pi}{4} \frac{\sqrt{1+p}-1}{\sqrt{1+p}+1} + \frac{\pi}{2} l \frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

18) $\int l(1+p Cos^2 2x) . Tg x \frac{dx}{x} = \pi l \frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

F. Alg. rat. fract. à dén. x;
Log. $l(1+2p Cos x+p^2)$; **TABLE 410.** Lim. 0 et ∞.
Circul. Directe rat.

1) $\int l(1 \pm 2p Cos 2x + p^2) . Sin x \frac{dx}{x} = 0 \, [p^2<1], = \pi l p \, [p^2>1]$ (VIII, 398).

2) $\int l(1 \pm 2p Cos 2x + p^2) . Sin x . Cos x \frac{dx}{x} = \pm \frac{1}{4} p \pi \, [p^2<1], = \pm \frac{1}{4} p \pi + \frac{\pi}{2} l p \, [p^2>1]$ (VIII, 398).

3) $\int l(1 \pm 2p Cos 2x + p^2) . Sin^3 x \frac{dx}{x} = \mp \frac{1}{4} p \pi \, [p^2<1] = \mp \frac{1}{4} p \pi + \frac{\pi}{2} l p \, [p^2>1]$ (VIII, 398).

4) $\int l(1 \pm 2p Cos 2x + p^2) . Sin x . Cos^2 x \frac{dx}{x} = \pm \frac{1}{4} p \pi \, [p^2<1], = \pm \frac{1}{4} p \pi + \frac{\pi}{2} l p \, [p^2>1]$ (VIII, 398).

5) $\int l(1 \pm 2p Cos 2x + p^2) . Sin^2 x . Tg x \frac{dx}{x} = \mp \frac{1}{4} p \pi \, [p^2<1], = \mp \frac{1}{4} p \pi + \frac{\pi}{2} l p \, [p^2>1]$ (VIII, 398).

6) $\int l(1 \pm 2p Cos 2x + p^2) . Tg x \frac{dx}{x} = 0 \, [p^2<1], = \pi l p \, [p^2>1]$ (VIII, 398).

7) $\int l(1 \pm 2p Cos 4x + p^2) . Sin^3 x . Cos x \frac{dx}{x} = \mp \frac{1}{16} p \pi \, [p^2<1] = \mp \frac{1}{16} p \pi + \frac{\pi}{8} l p \, [p^2>1]$ (VIII, 398).

F. Alg. rat. fract. à dén. x;
Log. $l(1+2p\,Cos\,x+p^2)$; **TABLE 410, suite.** Lim. 0 et ∞.
Circ. Directe rat.

8) $\int l(1\pm 2p\,Cos\,4x+p^2).Cos^2\,2x.Tg\,x\frac{dx}{x}=\pm\frac{1}{4}p\pi\,[p^2<1],=\pm\frac{1}{4}p\pi+\frac{\pi}{2}\,lp\,[p^2>1]$ (VIII, 398).

9) $\int l(1\pm 2p\,Cos\,4x+p^2).Tg\,x\frac{dx}{x}=0\,[p^2<1],=\pi\,lp\,[p^2>1]$ (VIII, 398).

10) $\int l(1\pm 2p\,Cos\,2x+p^2).Sin\,x.Cos\,2ax\frac{dx}{x}=-\frac{\pi}{2a}(\mp p)^a$ (VIII, 398).

11) $\int l(1\pm 2p\,Cos\,2x+p^2).Tg\,x.Cos\,2ax\frac{dx}{x}=-\frac{\pi}{2a}(\mp p)^a$ (VIII, 399).

12) $\int l(1\pm 2p\,Cos\,4x+p^2).Tg\,x.Cos\,4ax\frac{dx}{x}=-\frac{\pi}{2a}(\mp p)^a$ (VIII, 399).

13) $\int l(1-2p\,Sin^2x.Cos\,2x+p^2\,Sin^4x).Sin\,x\frac{dx}{x}=l\frac{p+4}{4}$ Bronwin, L. & E. Phil. Mag. 24, 491.

F. Alg. rat. fract. à dén. x;
Log. d'autre forme; **TABLE 411.** Lim. 0 et ∞.
Circ. Directe rat.

1) $\int l(px).Sin\,qx\frac{dx}{x}=\frac{\pi}{2}\left(l\frac{p}{q}-\mathrm{A}\right)$ (VIII, 457).

2) $\int l\,Sin\,rx.Sin\,x\frac{dx}{x}=-\frac{\pi}{2}\,l2$ (H, 15).

3) $\int l\,Cos\,rx.Sin\,x\frac{dx}{x}=-\frac{\pi}{2}\,l2$ (H, 15).

4) $\int l\,Tg\,rx.Sin\,x\frac{dx}{x}=0$ (H, 15).

5) $\int lx.Sin\,qx\frac{dx}{x^{1-p}}=\frac{1}{q^p}\left\{Sin\frac{1}{2}p\pi.Z'(p)-Sin\frac{1}{2}p\pi.lq+\frac{\pi}{2}Cos\frac{1}{2}p\pi\right\}\Gamma(p)\,[p<1]$ (IV, 534).

6) $\int lx.Cos\,qx\frac{dx}{x^{1-p}}=\frac{1}{q^p}\left\{Cos\frac{1}{2}p\pi.Z'(p)-Cos\frac{1}{2}p\pi.lq-\frac{\pi}{2}Sin\frac{1}{2}p\pi\right\}\Gamma(p)\,[p<1]$ (IV, 534).

7) $\int lx.Sin\,px.Cos\,qx\frac{dx}{x}=-\frac{\pi}{2}\left\{\mathrm{A}+\frac{1}{2}l(p^2-q^2)\right\}[p>q],=\frac{1}{4}\,l\frac{q-p}{q+p}\,[p<q]$

Schlömilch, Schl. Z. 7, 262.

8) $\int l(1+x).Cos\,px\frac{dx}{x}=\frac{1}{2}\{Ci(p)\}^2+\frac{1}{2}\left\{\frac{\pi}{2}-Si(p)\right\}^2$ Enneper, Schl. Z. 6, 405.

9) $\int l(1+x^2).Sin\,qx\frac{dx}{x}=-\pi\,li\,(e^{-q})$ (IV, 533).

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10) $\int l(q^2+x^2).\left\{l(1+p^2 Tg^2 rx)-\frac{2p^2 x Tg rx}{Cos^2 rx+p^2 Sin^2 rx}\right\}\frac{dx}{x^2}=\frac{2\pi}{q}\left\{1+p\frac{e^{qr}-e^{-qr}}{e^{qr}+e^{-qr}}\right\}$

V. T. 421, N. 1.

11) $\int l(1+p Sin^2 x).Sin x\frac{dx}{x}=\pi l\frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

12) $\int l(1+p Sin^2 x).Sin x.Cos x\frac{dx}{x}=\frac{\pi}{4}\frac{1-\sqrt{1+p}}{1+\sqrt{1+p}}+\frac{\pi}{2}l\frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

13) $\int l(1+p Sin^2 x).Sin^2 x\frac{dx}{x}=\frac{\pi}{4}\frac{\sqrt{1+p}-1}{\sqrt{1+p}+1}+\frac{\pi}{2}l\frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

14) $\int l(1+p Sin^2 x).Sin x.Cos^2 x\frac{dx}{x}=\frac{\pi}{4}\frac{1-\sqrt{1+p}}{1+\sqrt{1+p}}+\frac{\pi}{2}l\frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

15) $\int l(1+p Sin^2 x).Sin^2 x.Tg x\frac{dx}{x}=\frac{\pi}{4}\frac{\sqrt{1+p}-1}{\sqrt{1+p}+1}+\frac{\pi}{2}l\frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

16) $\int l(1+p Sin^2 x).Tg x\frac{dx}{x}=\frac{\pi}{2}l\frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

17) $\int l(1+p Sin^2 2x).Sin^2 x.Cos x\frac{dx}{x}=\frac{\pi}{16}\frac{\sqrt{1+p}-1}{\sqrt{1+p}+1}+\frac{\pi}{8}l\frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

18) $\int l(1+p^2 Sin^2 2x).Cos^2 2x.Tg x\frac{dx}{x}=\frac{\pi}{4}\frac{1-\sqrt{1+p}}{1+\sqrt{1+p}}+\frac{\pi}{2}l\frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

19) $\int l(1+p Sin^2 2x).Tg x\frac{dx}{x}=\frac{\pi}{2}l\frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

20) $\int l(1+p^2 Tg^2 x).l(1+q^2 Cot^2 x)\frac{dx}{x Sin x}=2\pi\frac{1+pq}{q}l(1+pq)-2p\pi$ (VIII, 399).

21) $\int l(1+p^2 Tg^2 x).l(1+q^2 Cot^2 x)\frac{dx}{x Sin x.Cos x}=2\pi\frac{1+pq}{q}l(1+pq)-2p\pi$ (VIII, 399).

22) $\int l(1+p^2 Tg^2 x).l(1+q^2 Cot^2 x)\frac{Sin x}{x Cos^2 x}dx=2\pi\frac{1+pq}{p}l(1+pq)-2q\pi$ (VIII, 399).

23) $\int l(1+p^2 Tg^2 x).l(1+q^2 Cot^2 x)\frac{Sin x}{x Cos^3 x}dx=2\pi\frac{1+pq}{p}l(1+pq)-2q\pi$ (VIII, 399).

24) $\int l(1+p^2 Tg^2 2x).l(1+q^2 Cot^2 2x)\frac{dx}{x Sin x.Cos^3 x}=8\pi\frac{1+pq}{p}l(1+pq)-8p\pi$ (VIII, 399).

25) $\int l(1+p^2 Tg^2 2x).l(1+q^2 Cot^2 2x)\frac{Tg x}{x Cos^2 2x}dx=2\pi\frac{1+pq}{q}l(1+pq)-2q\pi$ (VIII, 399).

1) $\int l(1-p^2 Sin^2 x) . Sin\, x . \sqrt{1-p^2 Sin^2 x} \frac{dx}{x} = (2-p^2) F'(p) - \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)$

2) $\int l(1-p^2 Sin^2 x) . Tg\, x . \sqrt{1-p^2 Sin^2 x} \frac{dx}{x} = (2-p^2) F'(p) - \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)$

3) $\int l(1-p^2 Sin^2 2x) . Tg\, x . \sqrt{1-p^2 Sin^2 2x} \frac{dx}{x} = (2-p^2) F'(p) - \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)$

Sur 1) à 3) voyez VIII, 399.

4) $\int l(1-p^2 Sin^2 x) \frac{Sin\, x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{1}{2} l(1-p^2) . F'(p)$ (VIII, 400).

5) $\int l(1-p^2 Sin^2 x) \frac{Sin\, x . Cos\, x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{1}{p^2} \left\{(2-p^2) - \frac{1}{2}(1-p^2) l(1-p^2)\right\} F'(p) -$

$- \frac{1}{p^2} \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)$ (VIII, 400).

6) $\int l(1-p^2 Sin^2 x) \frac{Sin^3 x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{1}{p^2} \left\{(p^2-2) + \frac{1}{2} l(1-p^2)\right\} F'(p) +$

$+ \frac{1}{p^2} \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)$ (VIII, 400).

7) $\int l(1-p^2 Sin^2 x) \frac{Sin\, x . Cos^2 x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{1}{p^2} \left\{(2-p^2) - \frac{1}{2}(1-p^2) l(1-p^2)\right\} F'(p) -$

$- \frac{1}{p^2} \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)$ (VIII, 400).

8) $\int l(1-p^2 Sin^2 x) \frac{Sin^2 x . Tg\, x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{1}{p^2} \left\{(p^2-2) + \frac{1}{2} l(1-p^2)\right\} F'(p) +$

$+ \frac{1}{p^2} \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)$ (VIII, 400).

9) $\int l(1-p^2 Sin^2 x) \frac{Tg\, x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{1}{2} l(1-p^2) . F'(p)$ (VIII, 400).

10) $\int l(1-p^2 Sin^2 2x) \frac{Sin^3 x . Cos\, x}{\sqrt{1-p^2 Sin^2 2x}} \frac{dx}{x} = \frac{1}{4p^2} \left\{(p^2-2) + \frac{1}{2} l(1-p^2)\right\} F'(p) +$

$+ \frac{1}{4p^2} \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)$ (VIII, 400).

11) $\int l(1-p^2 Sin^2 2x) \frac{Cos^2 2x . Tg\, x}{\sqrt{1-p^2 Sin^2 2x}} \frac{dx}{x} = \frac{1}{p^2} \left\{(2-p^2) - \frac{1}{2}(1-p^2) l(1-p^2)\right\} F'(p) -$

$- \frac{1}{p^2} \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)$ (VIII, 400).

12) $\int l(1-p^2 \, Sin^2 2x) \frac{Tg\,x}{\sqrt{1-p^2 Sin^2 2x}} \frac{dx}{x} = \frac{1}{2} l(1-p^2) . F'(p)$ (VIII, 400).

13) $\int l(1-p^2 \, Sin^2 x) \frac{Sin\,x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x} = \frac{1}{2(1-p^2)} [2(p^2-2) F'(p) + \{4 + l(1-p^2)\} E'(p)]$ (VIII, 402).

14) $\int l(1-p^2 \, Sin^2 x) \frac{Sin\,x . Cos\,x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x} = \frac{1}{2p^2} [\{2(2-p^2) + l(1-p^2)\} F'(p) - \{4 + l(1-p^2)\} E'(p)]$ (VIII, 402).

15) $\int l(1-p^2 \, Sin^2 x) \frac{Sin^2 x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x} = \frac{1}{p^2(1-p^2)} \left[\left\{2 + \frac{1}{2} l(1-p^2)\right\} E'(p) - \left\{(2-p^2) + \frac{1}{2}(1-p^2) l(1-p^2)\right\} F'(p)\right]$ (VIII, 402).

16) $\int l(1-p^2 \, Sin^2 x) \frac{Sin\,x . Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x} = \frac{1}{2p^2} [\{2(2-p^2) + l(1-p^2)\} F'(p) - \{4 + l(1-p^2)\} E'(p)]$ (VIII, 402).

17) $\int l(1-p^2 \, Sin^2 x) \frac{Sin^2 x . Tg\,x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x} = \frac{1}{p^2(1-p^2)} \left[\left\{2 + \frac{1}{2} l(1-p^2)\right\} E'(p) - \left\{(2-p^2) + \frac{1}{2}(1-p^2) l(1-p^2)\right\} F'(p)\right]$ (VIII, 402).

18) $\int l(1-p^2 \, Sin^2 x) \frac{Tg\,x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x} = \frac{1}{2(1-p^2)} [2(p^2-2) F'(p) + \{4 + l(1-p^2)\} E'(p)]$ (VIII, 402).

19) $\int l(1-p^2 \, Sin^2 2x) \frac{Sin^2 x . Cos\,x}{\sqrt{1-p^2 Sin^2 2x}^3} \frac{dx}{x} = \frac{1}{4p^2(1-p^2)} \left[\left\{2 + \frac{1}{2} l(1-p^2)\right\} E'(p) - \left\{(2-p^2) + \frac{1}{2}(1-p^2) l(1-p^2)\right\} F'(p)\right]$ (VIII, 402).

20) $\int l(1-p^2 \, Sin^2 2x) \frac{Cos^2 2x . Tg\,x}{\sqrt{1-p^2 Sin^2 2x}^3} \frac{dx}{x} = \frac{1}{2p^2} [\{2(2-p^2) + l(1-p^2)\} F'(p) - \{4 + l(1-p^2)\} E'(p)]$ (VIII, 402).

21) $\int l(1-p^2 \, Sin^2 2x) \frac{Tg\,x}{\sqrt{1-p^2 Sin^2 2x}^3} \frac{dx}{x} = \frac{1}{2(1-p^2)} [2(p^2-2) F'(p) + \{4 + l(1-p^2)\} E'(p)]$ (VIII, 402).

F. Alg. rat. fract. à dén. x;
Log. $l(1+q\,Sin^2 x)$; TABLE 413. Lim. 0 et ∞
Circ. Dir. irrat. $\sqrt{1-p^2\,Sin^2 x}$; $[p^2<1]$.

1) $\int l(1+p\,Sin^2 x)\frac{Sin\,x}{\sqrt{1-p^2\,Sin^2 x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{2(1+p)}{\sqrt{p}}\right\}.F'(p)-\frac{\pi}{8}F'\{\sqrt{1-p^2}\}$ (VIII, 401).

2) $\int l(1+p\,Sin^2 x)\frac{Tg\,x}{\sqrt{1-p^2\,Sin^2 x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{2(1+p)}{\sqrt{p}}\right\}.F'(p)-\frac{\pi}{8}F'\{\sqrt{1-p^2}\}$ (VIII, 401).

3) $\int l(1+p\,Sin^2 2x)\frac{Tg\,x}{\sqrt{1-p^2\,Sin^2 2x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{2(1+p)}{\sqrt{p}}\right\}.F'(p)-\frac{\pi}{8}F'\{\sqrt{1-p^2}\}$ (VIII, 401).

4) $\int l(1-p\,Sin^2 x)\frac{Sin\,x}{\sqrt{1-p^2\,Sin^2 x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{2(1-p)}{\sqrt{p}}\right\}.F'(p)-\frac{\pi}{8}F'\{\sqrt{1-p^2}\}$ (VIII, 401).

5) $\int l(1-p\,Sin^2 x)\frac{Tg\,x}{\sqrt{1-p^2\,Sin^2 x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{2(1-p)}{\sqrt{p}}\right\}.F'(p)-\frac{\pi}{8}F'\{\sqrt{1-p^2}\}$ (VIII, 401).

6) $\int l(1-p\,Sin^2 2x)\frac{Tg\,x}{\sqrt{1-p^2\,Sin^2 2x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{2(1-p)}{\sqrt{p}}\right\}.F'(p)-\frac{\pi}{8}F'\{\sqrt{1-p^2}\}$ (VIII, 401).

7) $\int l(1-p^2\,Sin^4 x)\frac{Sin\,x}{\sqrt{1-p^2\,Sin^2 x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{4(1-p^2)}{p}\right\}.F'(p)-\frac{\pi}{4}F'\{\sqrt{1-p^2}\}$ (VIII, 401).

8) $\int l(1-p^2\,Sin^4 x)\frac{Tg\,x}{\sqrt{1-p^2\,Sin^2 x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{4(1-p^2)}{p}\right\}.F'(p)-\frac{\pi}{4}F'\{\sqrt{1-p^2}\}$ (VIII, 401).

9) $\int l(1-p^2\,Sin^4 2x)\frac{Tg\,x}{\sqrt{1-p^2\,Sin^2 2x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{4(1-p^2)}{p}\right\}.F'(p)-\frac{\pi}{4}F'\{\sqrt{1-p^2}\}$ (VIII, 401).

10) $\int l(1-p^2\,Sin^2\lambda.\,Sin^2 x)\frac{Sin\,x}{\sqrt{1-p^2\,Sin^2 x}}\frac{dx}{x}=E'(p).\{F(p,\lambda)\}^2-2F'(p).T(p,\lambda)$ (VIII, 403).

11) $\int l(1-p^2\,Sin^2\lambda.\,Sin^2 x)\frac{Tg\,x}{\sqrt{1-p^2\,Sin^2 x}}\frac{dx}{x}=E'(p).\{F(p,\lambda)\}^2-2F'(p).T(p,\lambda)$ (VIII, 403).

12) $\int l(1-p^2\,Sin^2\lambda.\,Sin^2 2x)\frac{Tg\,x}{\sqrt{1-p^2\,Sin^2 2x}}\frac{dx}{x}=E'(p).\{F(p,\lambda)\}^2-2F'(p).T(p,\lambda)$ (VIII, 403).

13) $\int l(1+Cot^2\lambda.\,Sin^2 x)\frac{Sin\,x}{\sqrt{1-p^2\,Sin^2 x}}\frac{dx}{x}=\pi F\{\sqrt{1-p^2},\lambda\}-2F'(p).T\{\sqrt{1-p^2},\lambda\}-$
$-2F'(p).\,l\,Sin\lambda-\frac{\pi}{2}F'\{\sqrt{1-p^2}\}-F'(p).\,lp-\{E'(p)-F'(p)\}[F\{\sqrt{1-p^2},\lambda\}]^2$
(VIII, 403).

14) $\int l(1+Cot^2\lambda.\,Sin^2 x)\frac{Tg\,x}{\sqrt{1-p^2\,Sin^2 x}}\frac{dx}{x}=\pi F\{\sqrt{1-p^2},\lambda\}-2F'(p).T\{\sqrt{1-p^2},\lambda\}-$
$-2F'(p).\,l\,Sin\lambda-\frac{\pi}{2}F'\{\sqrt{1-p^2}\}-F'(p).\,lp-\{E'(p)-F'(p)\}[F\{\sqrt{1-p^2},\lambda\}]^2$
(VIII, 403).

15) $\int l(1+Cot^2\lambda . Sin^2 2x)\dfrac{Tg\,x}{\sqrt{1-p^2 Sin^2 2x}}\dfrac{dx}{x}=\pi F\{\sqrt{1-p^2},\lambda\}-2F'(p).T\{\sqrt{1-p^2},\lambda\}-$

$-2F'(p).l Sin\lambda-\dfrac{\pi}{2}F'\{\sqrt{1-p^2}\}-F'(p).lp-\{E'(p)-F'(p)\}[F\{\sqrt{1-p^2},\lambda\}]^2$

(VIII, 404).

16) $\int l[1-\{1-(1-p^2)Sin^2\lambda\}Sin^2 x]\dfrac{Sin\,x}{\sqrt{1-p^2 Sin^2 x}}\dfrac{dx}{x}=\pi F\{\sqrt{1-p^2},\lambda\}-$

$-2F'(p).T\{\sqrt{1-p^2},\lambda\}+\dfrac{1}{2}F'(p).l\dfrac{1-p^2}{p^2}-\dfrac{\pi}{2}F'\{\sqrt{1-p^2}\}+$

$+\{F'(p)-E'(p)\}[F\{\sqrt{1-p^2},\lambda\}]^2$ (VIII, 404).

17) $\int l[1-\{1-(1-p^2)Sin^2\lambda\}Sin^2 x]\dfrac{Tg\,x}{\sqrt{1-p^2 Sin^2 x}}\dfrac{dx}{x}=\pi F\{\sqrt{1-p^2},\lambda\}-$

$-2F'(p).T\{\sqrt{1-p^2},\lambda\}+\dfrac{1}{2}F(p).l\dfrac{1-p^2}{p^2}-\dfrac{\pi}{2}F'\{\sqrt{1-p^2}\}+$

$+\{F'(p)-E'(p)\}[F\{\sqrt{1-p^2},\lambda\}]^2$ (VIII, 404).

18) $\int l[1-\{1-(1-p^2)Sin^2\lambda\}Sin^2 2x]\dfrac{Tg\,x}{\sqrt{1-p^2 Sin^2 2x}}\dfrac{dx}{x}=\pi F\{\sqrt{1-p^2},\lambda\}-$

$-2F'(p).T\{\sqrt{1-p^2},\lambda\}+\dfrac{1}{2}F'(p).l\dfrac{1-p^2}{p^2}-\dfrac{\pi}{2}F'\{\sqrt{1-p^2}\}+$

$+\{F'(p)-E'(p)\}[F\{\sqrt{1-p^2},\lambda\}]^2$ (VIII, 404).

19) $\int l\{Sin^2 x.\sqrt{1-p^2}+Cos^2 x\}\dfrac{Sin\,x}{\sqrt{1-p^2 Sin^2 x}}\dfrac{dx}{x}=\dfrac{1}{2}l\left\{\dfrac{2\sqrt[4]{1-p^2}^{\,2}}{1+\sqrt{1-p^2}}\right\}.F'(p)$ (VIII, 405).

20) $\int l\{Sin^2 x.\sqrt{1-p^2}+Cos^2 x\}\dfrac{Tg\,x}{\sqrt{1-p^2 Sin^2 x}}\dfrac{dx}{x}=\dfrac{1}{2}l\left\{\dfrac{2\sqrt[4]{1-p^2}^{\,2}}{1+\sqrt{1-p^2}}\right\}.F'(p)$ (VIII, 405).

21) $\int l\{Sin^2 2x.\sqrt{1-p^2}+Cos^2 2x\}\dfrac{Tg\,x}{\sqrt{1-p^2 Sin^2 2x}}\dfrac{dx}{x}=\dfrac{1}{2}l\left\{\dfrac{2\sqrt[4]{1-p^2}^{\,2}}{1+\sqrt{1-p^2}}\right\}.F'(p)$ (VIII, 405).

F. Alg. rat. fract. à dén. x;
Log. $l(1-p^2\, Cos^2 x)$; TABLE 414. Lim. 0 et ∞.
Circ. Dir. irrat. $\sqrt{1-p^2\, Cos^2 x}$; $[p^2 < 1]$.

1) $\int l(1-p^2 Cos\, x) . Sin\, x . \sqrt{1-p^2\, Cos^2 x}\, \frac{dx}{x} = (2-p^2)\, F'(p) - \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)$ (VIII, 399).

2) $\int l(1-p^2 Cos^2 x) . Tg\, x . \sqrt{1-p^2\, Cos^2 x}\, \frac{dx}{x} = (2-p^2)\, F'(p) - \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)$ (VIII, 400).

3) $\int l(1-p^2\, Cos^2 2x) . Tg\, x . \sqrt{1-p^2\, Cos^2 2x}\, \frac{dx}{x} = (2-p^2)\, F'(p) - \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)$ (VIII, 400).

4) $\int l(1-p^2\, Cos^2 x)\, \frac{Sin\, x}{\sqrt{1-p^2\, Cos^2 x}}\, \frac{dx}{x} = \frac{1}{2} l(1-p^2) . F'(p)$ (VIII, 401).

5) $\int l(1-p^2\, Cos^2 x)\, \frac{Sin\, x . Cos\, x}{\sqrt{1-p^2\, Cos^2 x}}\, \frac{dx}{x} = \frac{1}{p^2} \left\{(p^2-2) + \frac{1}{2} l(1-p^2)\right\} F'(p) +$
$+ \frac{1}{p^2} \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)$ (VIII, 400).

6) $\int l(1-p^2\, Cos^2 x)\, \frac{Sin^2 x}{\sqrt{1-p^2\, Cos^2 x}}\, \frac{dx}{x} = \frac{1}{p^2} \left\{(2-p^2) - \frac{1}{2}(1-p^2)\, l(1-p^2)\right\} F'(p) -$
$- \frac{1}{p^2} \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)$ (VIII, 400).

7) $\int l(1-p^2\, Cos^2 x)\, \frac{Sin\, x . Cos^2 x}{\sqrt{1-p^2\, Cos^2 x}}\, \frac{dx}{x} = \frac{1}{p^2} \left[\left\{(p^2-2) + \frac{1}{2} l(1-p^2)\right\} F'(p) +\right.$
$\left. + \frac{1}{p^2} \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)\right]$ (VIII, 400).

8) $\int l(1-p^2\, Cos^2 x)\, \frac{Sin^2 x . Tg\, x}{\sqrt{1-p^2\, Cos^2 x}}\, \frac{dx}{x} = \frac{1}{p^2} \left\{(2-p^2) - \frac{1}{2}(1-p^2)\, l(1-p^2)\right\} F'(p) -$
$- \frac{1}{p^2} \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)$ (VIII, 400).

9) $\int l(1-p^2\, Cos^2 x)\, \frac{Tg\, x}{\sqrt{1-p^2\, Cos^2 x}}\, \frac{dx}{x} = \frac{1}{2} l(1-p^2) . F'(p)$ (VIII, 401).

10) $\int l(1-p^2\, Cos^2 2x)\, \frac{Sin^2 x . Cos\, x}{\sqrt{1-p^2\, Cos^2 2x}}\, \frac{dx}{x} = \frac{1}{4p^2} \left\{(2-p^2) - \frac{1}{2}(1-p^2)\, l(1-p^2)\right\} F'(p) -$
$- \frac{1}{4p^2} \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)$ (VIII, 400).

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11) $\int l(1-p^2 \, Cos^2 2x) \frac{Cos^2 2x \, . \, Tg x}{\sqrt{1-p^2 \, Cos^2 2x}} \frac{dx}{x} = \frac{1}{p^2} \left\{(p^2-2)+\frac{1}{2} l(1-p^2)\right\} F'(p) + \frac{1}{p^2}\left\{2-\frac{1}{2} l(1-p^2)\right\} E'(p)$ (VIII, 401).

12) $\int l(1-p^2 \, Cos^2 2x) \frac{Tg x}{\sqrt{1-p^2 \, Cos^2 2x}} \frac{dx}{x} = \frac{1}{2} l(1-p^2) . F'(p)$ (VIII, 401).

13) $\int l(1-p^2 \, Cos^2 x) \frac{Sin x}{\sqrt{1-p^2 \, Cos^2 x}^3} \frac{dx}{x} = \frac{1}{2(1-p^2)} [2(p^2-2) F'(p) + \{4 + l(1-p^2)\} E'(p)]$

14) $\int l(1-p^2 \, Cos^2 x) \frac{Sin x \, . \, Cos x}{\sqrt{1-p^2 \, Cos^2 x}^3} \frac{dx}{x} = \frac{1}{p^2(1-p^2)} \left[\left\{2+\frac{1}{2} l(1-p^2)\right\} E'(p) - \left\{(2-p^2)+\frac{1}{2}(1-p^2) l(1-p^2)\right\} F'(p)\right]$

15) $\int l(1-p^2 \, Cos^2 x) \frac{Sin^3 x}{\sqrt{1-p^2 \, Cos^2 x}^3} \frac{dx}{x} = \frac{1}{2p^2} [\{2(2-p^2) + l(1-p^2)\} F'(p) - \{4 + l(1-p^2)\} E'(p)]$.

16) $\int l(1-p^2 \, Cos^2 x) \frac{Sin x \, . \, Cos^2 x}{\sqrt{1-p^2 \, Cos^2 x}^3} \frac{dx}{x} = \frac{1}{p^2(1-p^2)} \left[\left\{2+\frac{1}{2} l(1-p^2)\right\} E'(p) - \left\{(2-p^2)+\frac{1}{2}(1-p^2) l(1-p^2)\right\} F'(p)\right]$

17) $\int l(1-p^2 \, Cos^2 x) \frac{Sin^2 x \, . \, Tg x}{\sqrt{1-p^2 \, Cos^2 x}^3} \frac{dx}{x} = \frac{1}{2p^2} [\{2(2-p^2) + l(1-p^2)\} F'(p) - \{4 + l(1-p^2)\} E'(p)]$

18) $\int l(1-p^2 \, Cos^2 x) \frac{Tg x}{\sqrt{1-p^2 \, Cos^2 x}^3} \frac{dx}{x} = \frac{1}{2(1-p^2)} [2(p^2-2) F'(p) + \{4 + l(1-p^2)\} E'(p)]$

19) $\int l(1-p^2 \, Cos^2 2x) \frac{Sin x \, . \, Cos^3 x}{\sqrt{1-p^2 \, Cos^2 2x}^3} \frac{dx}{x} = \frac{1}{8p^2} [\{2(2-p^2) + l(1-p^2)\} F'(p) - \{4 + l(1-p^2)\} E'(p)]$

20) $\int l(1-p^2 \, Cos^2 2x) \frac{Cos^2 2x \, . \, Tg x}{\sqrt{1-p^2 \, Cos^2 2x}^3} \frac{dx}{x} = \frac{1}{p^2(1-p^2)} \left[\left\{2+\frac{1}{2} l(1-p^2)\right\} E'(p) - \left\{(2-p^2)+\frac{1}{2}(1-p^2) l(1-p^2)\right\} F'(p)\right]$

21) $\int l(1-p^2 \, Cos^2 2x) \frac{Tg x}{\sqrt{1-p^2 \, Cos^2 2x}^3} \frac{dx}{x} = \frac{1}{2(1-p^2)} [2(p^2-2) F'(p) + \{4 + l(1-p^2)\} E'(p)]$

Sur 13) à 21) voyez VIII, 403.

1) $\int l(1+p\,Cos^2 x)\frac{Sin\,x}{\sqrt{1-p^2 Cos^2 x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{2(1+p)}{\sqrt{p}}\right\}.F'(p)-\frac{\pi}{8}F'\{\sqrt{1-p^2}\}$ (VIII, 401).

2) $\int l(1+p\,Cos^2 x)\frac{Tg\,x}{\sqrt{1-p^2 Cos^2 x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{2(1+p)}{\sqrt{p}}\right\}.F'(p)-\frac{\pi}{8}F'\{\sqrt{1-p^2}\}$ (VIII, 401).

3) $\int l(1+p\,Cos^2 2x)\frac{Tg\,x}{\sqrt{1-p^2 Cos^2 2x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{2(1+p)}{\sqrt{p}}\right\}.F'(p)-\frac{\pi}{8}F'\{\sqrt{1-p^2}\}$

4) $\int l(1-p\,Cos^2 x)\frac{Sin\,x}{\sqrt{1-p^2 Cos^2 x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{2(1-p)}{\sqrt{p}}\right\}.F'(p)-\frac{\pi}{8}F'\{\sqrt{1-p^2}\}$

5) $\int l(1-p\,Cos^2 x)\frac{Tg\,x}{\sqrt{1-p^2 Cos^2 x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{2(1-p)}{\sqrt{p}}\right\}.F'(p)-\frac{\pi}{8}F'\{\sqrt{1-p^2}\}$

6) $\int l(1-p\,Cos^2 2x)\frac{Tg\,x}{\sqrt{1-p^2 Cos^2 2x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{2(1-p)}{\sqrt{p}}\right\}.F'(p)-\frac{\pi}{8}F'\{\sqrt{1-p^2}\}$

7) $\int l(1-p^2\,Cos^4 x)\frac{Sin\,x}{\sqrt{1-p^2 Cos^2 x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{4(1-p^2)}{p}\right\}.F'(p)-\frac{\pi}{4}F'\{\sqrt{1-p^2}\}$

8) $\int l(1-p^2\,Cos^4 x)\frac{Tg\,x}{\sqrt{1-p^2 Cos^2 x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{4(1-p^2)}{p}\right\}.F'(p)-\frac{\pi}{4}F'\{\sqrt{1-p^2}\}$

9) $\int l(1-p^2\,Cos^4 2x)\frac{Tg\,x}{\sqrt{1-p^2 Cos^2 2x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{4(1-p^2)}{p}\right\}.F'(p)-\frac{\pi}{4}F'\{\sqrt{1-p^2}\}$

Sur 3) à 9) voyez VIII, 402.

10) $\int l(1-p^2\,Sin^2\lambda.Cos^2 x)\frac{Sin\,x}{\sqrt{1-p^2 Cos^2 x}}\frac{dx}{x}=E'(p).\{F(p,\lambda)\}^2-2F'(p).T(p,\lambda)$ (VIII, 404).

11) $\int l(1-p^2\,Sin^2\lambda.Cos^2 x)\frac{Tg\,x}{\sqrt{1-p^2 Cos^2 x}}\frac{dx}{x}=E'(p).\{F(p,\lambda)\}^2-2F'(p).T(p,\lambda)$ (VIII, 404).

12) $\int l(1-p^2\,Sin^2\lambda.Cos^2 2x)\frac{Tg\,x}{\sqrt{1-p^2 Cos^2 2x}}\frac{dx}{x}=E'(p).\{F(p,\lambda)\}^2-2F'(p).T(p,\lambda)$ (VIII, 404).

13) $\int l(1+Cot^2\lambda.Cos^2 x)\frac{Sin\,x}{\sqrt{1-p^2 Cos^2 x}}\frac{dx}{x}=\pi F\{\sqrt{1-p^2},\lambda\}-2F'(p).T\{\sqrt{1-p^2},\lambda\}-$

$-2F'(p).l\,Sin\,\lambda-\frac{\pi}{2}F'\{\sqrt{1-p^2}\}-F'(p).lp-\{E'(p)-F'(p)\}[F\{\sqrt{1-p^2},\lambda\}]^2$ (VIII, 404).

14) $\int l(1+Cot^2\lambda.Cos^2 x)\frac{Tg\,x}{\sqrt{1-p^2 Cos^2 x}}\frac{dx}{x}=\pi F\{\sqrt{1-p^2},\lambda\}-2F'(p).T\{\sqrt{1-p^2},\lambda\}-$

$-2F'(p).l\,Sin\,\lambda-\frac{\pi}{2}F'\{\sqrt{1-p^2}\}-F'(p).lp-\{E'(p)-F'(p)\}[F\{\sqrt{1-p^2},\lambda\}]^2$ (VIII, 404).

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F. Alg. rat. fract. à dén. x;
Log. $l(1+q\,Cos^2 x)$; TABLE 415, suite. Lim. 0 et ∞.
Circ. Dir. irrat. $\sqrt{1-p^2\,Cos^2 x}$; $[p^2<1]$.

15) $\int l(1+Cot^2\lambda\,.\,Cos^2 2x)\frac{Tg\,x}{\sqrt{1-p^2\,Cos^2 2x}}\frac{dx}{x}=\pi\,\mathrm{F}\{\sqrt{1-p^2},\lambda\}-2\,\mathrm{F}'(p)\,.\,\Upsilon\{\sqrt{1-p^2},\lambda\}-$
$-2\,\mathrm{F}'(p)\,.\,l\,Sin\lambda-\frac{\pi}{2}\,\mathrm{F}'\{\sqrt{1-p^2}\}-\mathrm{F}'(p)\,.\,l\,p-\{\mathrm{E}'(p)-\mathrm{F}'(p)\}[\mathrm{F}\{\sqrt{1-p^2},\lambda\}]^2$ (VIII, 404).

16) $\int l[1-\{1-(1-p^2)\,Sin^2\lambda\}\,Cos^2 x]\frac{Sin\,x}{\sqrt{1-p^2\,Cos^2 x}}\frac{dx}{x}=\pi\,\mathrm{F}\{\sqrt{1-p^2},\lambda\}-$
$-2\,\mathrm{F}'(p)\,.\,\Upsilon\{\sqrt{1-p^2},\lambda\}+\frac{1}{2}\mathrm{F}'(p)\,.\,l\frac{1-p^2}{p^2}-\frac{\pi}{2}\,\mathrm{F}'\{\sqrt{1-p^2}\}+$
$+\{\mathrm{F}'(p)-\mathrm{E}'(p)\}[\mathrm{F}\{\sqrt{1-p^2},\lambda\}]^2$ (VIII, 404).

17) $\int l[1-\{1-(1-p^2)\,Sin^2\lambda\}\,Cos^2 x]\frac{Tg\,x}{\sqrt{1-p^2\,Cos^2 x}}\frac{dx}{x}=\pi\,\mathrm{F}\{\sqrt{1-p^2},\lambda\}-$
$-2\,\mathrm{F}'(p)\,.\,\Upsilon\{\sqrt{1-p^2},\lambda\}+\frac{1}{2}\mathrm{F}'(p)\,.\,l\frac{1-p^2}{p^2}-\frac{\pi}{2}\,\mathrm{F}'\{\sqrt{1-p^2}\}+$
$+\{\mathrm{F}'(p)-\mathrm{E}'(p)\}[\mathrm{F}\{\sqrt{1-p^2},\lambda\}]^2$ (VIII, 405).

18) $\int l[1-\{1-(1-p^2)\,Sin^2\lambda\}\,Cos^2 2x]\frac{Tg\,x}{\sqrt{1-p^2\,Cos^2 2x}}\frac{dx}{x}=\pi\,\mathrm{F}\{\sqrt{1-p^2},\lambda\}-$
$-2\,\mathrm{F}'(p)\,.\,\Upsilon\{\sqrt{1-p^2},\lambda\}+\frac{1}{2}\mathrm{F}'(p)\,.\,l\frac{1-p^2}{p^2}-\frac{\pi}{2}\,\mathrm{F}'\{\sqrt{1-p^2}\}+$
$+\{\mathrm{F}'(p)-\mathrm{E}'(p)\}[\mathrm{F}\{\sqrt{1-p^2},\lambda\}]^2$ (VIII, 405).

19) $\int l\{Sin^2 x+Cos^2 x\,.\,\sqrt{1-p^2}\}\frac{Sin\,x}{\sqrt{1-p^2\,Cos^2 x}}\frac{dx}{x}=\frac{1}{2}\,l\left\{\frac{2\sqrt[4]{1-p^2}^{\,3}}{1+\sqrt{1-p^2}}\right\}.\,\mathrm{F}'(p)$ (VIII, 405).

20) $\int l\{Sin^2 x+Cos^2 x\,.\,\sqrt{1-p^2}\}\frac{Tg\,x}{\sqrt{1-p^2\,Cos^2 x}}\frac{dx}{x}=\frac{1}{2}\,l\left\{\frac{2\sqrt[4]{1-p^2}^{\,3}}{1+\sqrt{1-p^2}}\right\}.\,\mathrm{F}'(p)$ (VIII, 405).

21) $\int l\{Sin^2 2x+Cos^2 2x\,.\,\sqrt{1-p^2}\}\frac{Tg\,x}{\sqrt{1-p^2\,Cos^2 2x}}\frac{dx}{x}=\frac{1}{2}\,l\left\{\frac{2\sqrt[4]{1-p^2}^{\,3}}{1+\sqrt{1-p^2}}\right\}.\,\mathrm{F}'(p)$ (VIII, 405).

F. Alg. rat. fract. à dén. x;
Log. de fraction; TABLE 416. Lim. 0 et ∞.
Circ. Directe.

1) $\int l\left(\frac{1+Sin\,px}{1-Sin\,px}\right)\frac{dx}{x}=\frac{1}{2}\pi^2$ (VIII, 385*). 2) $\int l\left(\frac{1+Tg\,px}{1-Tg\,px}\right)^2\frac{dx}{x}=\frac{1}{2}\pi^2$ (VIII, 385*).

3) $\int l\left(\frac{1+2p\,Cos\,ax+p^2}{1+2p\,Cos\,bx+p^2}\right)\frac{dx}{x}=l(1+p)\,.\,l\frac{b^2}{a^2}\,[p^2\leq 1],=l\frac{1+p}{p}\,.\,l\frac{b^2}{a^2}\,[p^2\geq 1]$ (VIII, 273).

F. Alg. rat. fract. à dén. x; Log. de fraction; Circ. Directe.	TABLE 416, suite.	Lim. 0 et ∞.

4) $\int l\left(\frac{1+2p\,Sin\,x+p^2}{1-2p\,Sin\,x+p^2}\right)\frac{dx}{x}=2\pi\,Arctg\,p$ Bronwin, Mathem. 1. 197.

5) $\int l\left(\frac{1+q\sqrt{1-p^2\,Sin^2x}}{1-q\sqrt{1-p^2\,Sin^2x}}\right)\frac{Sin\,x}{\sqrt{1-p^2\,Sin^2x}}\frac{dx}{x}=\pi\mathrm{F}\left\{\sqrt{1-p^2}, Arcsin\,q\right\}$ (VIII, 405).

6) $\int l\left(\frac{1+q\sqrt{1-p^2\,Sin^2x}}{1-q\sqrt{1-p^2\,Sin^2x}}\right)\frac{Tg\,x}{\sqrt{1-p^2\,Sin^2x}}\frac{dx}{x}=\pi\mathrm{F}\left\{\sqrt{1-p^2}, Arcsin\,q\right\}$ (VIII, 405).

7) $\int l\left(\frac{1+q\sqrt{1-p^2\,Sin^2 2x}}{1-q\sqrt{1-p^2\,Sin^2 2x}}\right)\frac{Tg\,x}{\sqrt{1-p^2\,Sin^2 2x}}\frac{dx}{x}=\pi\mathrm{F}\left\{\sqrt{1-p^2}, Arcsin\,q\right\}$ (VIII, 405).

8) $\int l\left(\frac{1+q\sqrt{1-p^2\,Cos^2x}}{1-q\sqrt{1-p^2\,Cos^2x}}\right)\frac{Sin\,x}{\sqrt{1-p^2\,Cos^2x}}\frac{dx}{x}=\pi\mathrm{F}\left\{\sqrt{1-p^2}, Arcsin\,q\right\}$ (VIII, 406).

9) $\int l\left(\frac{1+q\sqrt{1-p^2\,Cos^2x}}{1-q\sqrt{1-p^2\,Cos^2x}}\right)\frac{Tg\,x}{\sqrt{1-p^2\,Cos^2x}}\frac{dx}{x}=\pi\mathrm{F}\left\{\sqrt{1-p^2}, Arcsin\,q\right\}$ (VIII, 406).

10) $\int l\left(\frac{1+q\sqrt{1-p^2\,Cos^2 2x}}{1-q\sqrt{1-p^2\,Cos^2 2x}}\right)\frac{Tg\,x}{\sqrt{1-p^2\,Cos^2 2x}}\frac{dx}{x}=\pi\mathrm{F}\left\{\sqrt{1-p^2}, Arcsin\,q\right\}$ (VIII, 406).

F. Alg. rat. fract. à dén. q^2+x^2; Logarithmique de Circulaire Directe.	TABLE 417.	Lim. 0 et ∞.

1) $\int l\,Sin^2 px\frac{dx}{q^2+x^2}=\frac{\pi}{q}\,l\frac{1-e^{-2pq}}{2}$ (VIII, 419).

2) $\int l\,Cos^2 px\frac{dx}{q^2+x^2}=\frac{\pi}{q}\,l\frac{1+e^{-2pq}}{2}$ (VIII, 419).

3) $\int l\,Tg^2 px\frac{dx}{q^2+x^2}=\frac{\pi}{q}\,l\frac{e^{2pq}-1}{e^{2pq}+1}$ (VIII, 419).

4) $\int l\,Cot^2 px\frac{dx}{q^2+x^2}=\frac{\pi}{q}\,l\frac{e^{pq}+e^{-pq}}{e^{pq}-e^{-pq}}$ V. T. 417, N. 1, 2.

5) $\int l\,Sin\,rx\,.\,Tg\,2rx\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}\,\frac{1-e^{-4qr}}{1+e^{-4qr}}\,l\frac{2}{1-e^{-2qr}}$ (H, 151).

6) $\int l\,Sin\,rx\,.\,Cot\,2rx\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}\,\frac{1+e^{-4qr}}{1-e^{-4qr}}\,l\frac{1-e^{-2qr}}{2}$ (H, 151).

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F. Alg. rat. fract. à dén. q^2+x^2;
Logarithmique de Circulaire Directe. — TABLE 417, suite. — Lim. 0 et ∞.

7) $\int \frac{l\,Sin\,rx}{Sin\,2rx}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{e^{2qr}-e^{-2qr}}\,l\frac{1-e^{-2qr}}{2}$ (H, 151).

8) $\int l\left(\frac{1}{2}Sin\,rx\right).Tg\,rx\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}\,\frac{1-e^{-2qr}}{1+e^{-2qr}}\,l\frac{4}{1-e^{-2qr}}$ (H, 152).

9) $\int l\left(\frac{1}{2}Sin\,rx\right).Cot\,rx\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}\,\frac{1+e^{-2qr}}{1-e^{-2qr}}\,l\frac{1-e^{-2qr}}{4}$ (H, 152).

10) $\int \frac{l(\frac{1}{2}Sin\,rx)}{Sin\,rx}\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{e^{qr}-e^{-qr}}\,l\frac{1-e^{-2qr}}{4}$ (H, 152).

11) $\int l\,Cos\,rx.Tg\,2rx\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}\,\frac{1-e^{-4qr}}{1+e^{-4qr}}\,l\frac{2}{1+e^{-2qr}}$ (H, 151).

12) $\int l\,Cos\,rx.\,Cot\,2rx\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}\,\frac{1+e^{-4qr}}{1-e^{-4qr}}\,l\frac{1+e^{-2qr}}{2}$ (H, 151).

13) $\int \frac{l\,Cos\,rx}{Sin\,2rx}\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{e^{2qr}-e^{-2qr}}\,l\frac{1+e^{-2qr}}{2}$ (H, 151).

14) $\int l\,Tg\,rx.Tg\,2rx\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}\,\frac{1-e^{-4qr}}{1+e^{-4qr}}\,l\frac{e^{qr}+e^{-qr}}{e^{qr}-e^{-qr}}$ (H, 152).

15) $\int l\,Tg\,rx.\,Cot\,2rx\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}\,\frac{1+e^{-4qr}}{1-e^{-4qr}}\,l\frac{e^{qr}-e^{-qr}}{e^{qr}+e^{-qr}}$ (H, 152).

16) $\int \frac{l\,Tg\,rx}{Sin\,2rx}\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{e^{2qr}-e^{2qr}}\,l\frac{e^{qr}-e^{-qr}}{e^{qr}+e^{-qr}}$ (H, 152).

F. Alg. rat. fract à dén. q^2-x^2;
Logarithmique de Circulaire Directe. — TABLE 418. — Lim. 0 et ∞.

1) $\int l\,Sin^2 px\frac{dx}{q^2-x^2}=-\frac{1}{2q}\pi^2+p\pi$ (VIII, 509).

2) $\int l\,Cos^2 px\frac{dx}{q^2-x^2}=p\pi$ (VIII, 509).

3) $\int l\,Tg^2 px\frac{dx}{q^2-x^2}=-\frac{1}{2q}\pi^2$ (VIII, 509).

4) $\int l\,Sin\,rx.Tg\,2rx\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\left(qr-\frac{1}{2}\pi\right)Tg\,2qr$ (H, 152).

5) $\int l\,Sin\,rx.\,Cot\,2rx\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\left(qr-\frac{1}{2}\pi\right)Cot\,2qr$ (H, 152).

6) $\int \frac{l\,Sin\,rx}{Sin\,2rx}\,\frac{x\,dx}{q^2-x^2} = \frac{\pi}{2}\,\frac{qr-\frac{1}{2}\pi}{Sin\,2qr}$ (H, 152).

7) $\int l\left(\frac{1}{2}\,Sin\,rx\right).Tg\,rx\,\frac{x\,dx}{q^2-x^2} = \frac{\pi}{2}\left(qr-\frac{1}{2}\pi\right)Tg\,qr$ (H, 152).

8) $\int l\left(\frac{1}{2}\,Sin\,rx\right).Cot\,rx\,\frac{x\,dx}{q^2-x^2} = \frac{\pi}{2}\left(qr-\frac{1}{2}\pi\right)Cot\,qr$ (H, 152).

9) $\int \frac{l(\frac{1}{2}\,Sin\,rx)}{Sin\,rx}\,\frac{x\,dx}{q^2-x^2} = \frac{\pi}{2}\,\frac{qr-\frac{1}{2}\pi}{Sin\,qr}$ (H, 153).

10) $\int l\,Cos\,rx\,.Tg\,2rx\,\frac{x\,dx}{q^2-x^2} = \frac{\pi}{2}\,qr\,Tg\,2qr$ (H, 151).

11) $\int l\,Cos\,rx\,.\,Cot\,2rx\,\frac{x\,dx}{q^2-x^2} = \frac{\pi}{2}\,qr\,Cot\,2qr$ (H, 151).

12) $\int \frac{l\,Cos\,rx}{Sin\,2rx}\,\frac{x\,dx}{q^2-x^2} = \frac{\pi}{2}\,\frac{qr}{Sin\,2qr}$ (H, 151).

13) $\int l\,Tg\,rx\,.\,Tg\,2rx\,\frac{x\,dx}{q^2-x^2} = -\frac{1}{4}\pi^2\,Tg\,2qr$ (H, 152).

14) $\int l\,Tg\,rx\,.\,Cot\,2rx\,\frac{x\,dx}{q^2-x^2} = -\frac{1}{4}\pi^2\,Cot\,2qr$ (H, 152).

15) $\int \frac{l\,Tg\,rx}{Sin\,2rx}\,\frac{x\,dx}{q^2-x^2} = -\frac{1}{4}\pi^2\,Cosec\,2qr$ (H, 152).

F. Alg. rat. fract. à dén. $q^4 \pm x^4$;
Logarithmique de Circulaire Directe. TABLE 419. Lim. 0 et ∞.

1) $\int l\,Sin\,px\,\frac{dx}{q^4+x^4} = \frac{\pi}{2q^3\sqrt{2}}\,l\left\{\frac{1}{2}\sqrt{1-2e^{-pq\sqrt{2}}\,Cos(pq\sqrt{2})+e^{-2pq\sqrt{2}}}\right\} -$

$- \frac{\pi}{2q^3\sqrt{2}}\,Arcsin\left\{\frac{e^{-pq\sqrt{2}}\,Sin(pq\sqrt{2})}{\sqrt{1-2e^{-pq\sqrt{2}}\,Cos(pq\sqrt{2})+e^{-2pq\sqrt{2}}}}\right\}$ (IV, 537).

2) $\int l\,Cos\,px\,\frac{dx}{q^4+x^4} = \frac{\pi}{8q^3\sqrt{2}}\,l\left\{\frac{1}{2}\sqrt{1+2e^{-pq\sqrt{2}}\,Cos(pq\sqrt{2})+e^{-2pq\sqrt{2}}}\right\} +$

$+ \frac{\pi}{2q^3\sqrt{2}}\,Arcsin\left\{\frac{e^{-pq\sqrt{2}}\,Sin(pq\sqrt{2})}{\sqrt{1+2e^{-pq\sqrt{2}}\,Cos(pq\sqrt{2})+e^{-2pq\sqrt{2}}}}\right\}$ (IV, 537).

3) $$\int l\,Tg\,px\,\frac{dx}{q^4+x^4}=\frac{\pi}{4q^3\sqrt{2}}\,l\,\frac{1-2e^{-pq\sqrt{2}}\,Cos\,(pq\sqrt{2})+e^{-2pq\sqrt{2}}}{1+2e^{-pq\sqrt{2}}\,Cos\,(pq\sqrt{2})+e^{-2pq\sqrt{2}}}-$$
$$-\frac{\pi}{2q^3\sqrt{2}}\,Arcsin\left\{\frac{2e^{-pq\sqrt{2}}\,Sin\,(pq\sqrt{2})}{\sqrt{1-2e^{-2pq\sqrt{2}}\,Cos(2pq\sqrt{2})+e^{-4pq\sqrt{2}}}}\right\}$$ V. T. 419, N. 1, 2.

4) $$\int l\,Sin\,rx\,\frac{dx}{4q^4+x^4}=\frac{\pi}{8q^3}\left\{\frac{1}{2}\,l\,\frac{1-2e^{-2qr}\,Cos\,2qr+e^{-4qr}}{2}-Arctg\,\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right\}$$ (H, 62).

5) $$\int l\,Sin\,rx\,\frac{x^2\,dx}{4q^4+x^4}=\frac{\pi}{4q}\left\{\frac{1}{2}\,l\,\frac{1-2e^{-2qr}\,Cos\,2qr+e^{-4qr}}{2}+Arctg\,\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right\}$$ (H, 62).

6) $$\int l\,Cos\,rx\,\frac{dx}{4q^4+x^4}=\frac{\pi}{8q^3}\left\{\frac{1}{2}\,l\,\frac{1+2e^{-2qr}\,Cos\,2qr+e^{-4qr}}{2}+Arctg\,\frac{Sin\,2qr}{e^{2qr}+Cos\,2qr}\right\}$$ (H, 60).

7) $$\int l\,Cos\,rx\,\frac{x^2\,dx}{4q^4+x^4}=\frac{\pi}{4q}\left\{\frac{1}{2}\,l\,\frac{1+2e^{-2qr}\,Cos\,2qr+e^{-4qr}}{2}-Arctg\,\frac{Sin\,2qr}{e^{2qr}+Cos\,2qr}\right\}$$ (H, 60).

8) $$\int l\,Tg\,rx\,\frac{dx}{4q^4+x^4}=\frac{\pi}{8q^3}\left\{\frac{1}{2}\,l\,\frac{e^{2qr}-2\,Cos\,2qr+e^{-2qr}}{e^{2qr}+2\,Cos\,2qr+e^{-2qr}}+Arctg\,\frac{2\,Sin\,2qr}{e^{2qr}-e^{-2qr}}\right\}$$ (H, 62).

9) $$\int l\,Tg\,rx\,\frac{dx}{4q^4+x^4}=\frac{\pi}{4q}\left\{\frac{1}{2}\,l\,\frac{e^{2qr}-2\,Cos\,2qr+e^{-2qr}}{e^{2qr}+2\,Cos\,2qr+e^{-2qr}}-Arctg\,\frac{2\,Sin\,2qr}{e^{2qr}-e^{-2qr}}\right\}$$ (H, 62).

10) $$\int l\,Sin\,rx\,\frac{dx}{q^4-x^4}=\frac{\pi}{4q^3}\left(qr-\frac{1}{2}\pi+l\,\frac{1-e^{-2qr}}{2}\right)$$ (H, 111).

11) $$\int l\,Sin\,rx\,\frac{x^2\,dx}{q^4-x^4}=\frac{\pi}{4q}\left(qr-\frac{1}{2}\pi-l\,\frac{1-e^{-2qr}}{2}\right)$$ (H, 111).

12) $$\int l\,Cos\,rx\,\frac{dx}{q^4-x^4}=\frac{\pi}{4q^3}\left(l\,\frac{1+e^{-2qr}}{2}+qr\right)$$ (H, 110).

13) $$\int l\,Cos\,rx\,\frac{x^2\,dx}{q^4-x^4}=\frac{\pi}{4q}\left(qr-l\,\frac{1+e^{-2qr}}{2}\right)$$ (H, 110).

14) $$\int l\,Tg\,rx\,\frac{dx}{q^4-x^4}=\frac{\pi}{4q^3}\left(l\,\frac{e^{qr}-e^{-qr}}{e^{qr}+e^{-qr}}-\frac{1}{2}\pi\right)$$ (H, 111).

15) $$\int l\,Tg\,rx\,\frac{x^2\,dx}{q^4-x^4}=\frac{\pi}{4q}\left(l\,\frac{e^{qr}+e^{-qr}}{e^{qr}-e^{-qr}}-\frac{1}{2}\pi\right)$$ (H, 111).

F. Alg. rat. fract. à autre dén. bin.; Logarithmique de Circulaire Directe monôme.

TABLE 420.

Lim. 0 et ∞.

1) $\int l\,Sin\,r\,x \frac{dx}{(q^2-x^2)^2} = \frac{\pi}{8q^3}(4qr-\pi)$ (H, 111).

2) $\int l\,Sin\,r\,x \frac{x^2\,dx}{(q^2-x^2)^2} = \frac{\pi^2}{8q}$ (H, 111).

3) $\int l\,Cos\,r\,x \frac{dx}{(q^2-x^2)^2} = 0$ (H, 110).

4) $\int l\,Cos\,r\,x \frac{x^2\,dx}{(q^2-x^2)^2} = -\frac{1}{2}\pi r$ (H, 111).

5) $\int l\,Tg\,r\,x \frac{dx}{(q^2-x^2)^2} = \frac{\pi}{8q^3}(4qr-\pi)$ (H, 111).

6) $\int l\,Tg\,r\,x \frac{dx}{(q^2-x^2)^2} = \frac{\pi}{8q}(\pi+4qr)$ (H, 111).

F. Alg. rat. fract. à dén. binôme; Logarithmique de Circulaire Directe polynôme.

TABLE 421.

Lim. 0 et ∞.

1) $\int l(1+p^2\,Tg^2 r\,x)\frac{dx}{q^2+x^2} = \frac{\pi}{q}\,l\left(1+p\frac{e^{qr}-e^{-qr}}{e^{qr}+e^{-qr}}\right)$ (VIII, 418*).

2) $\int l(1+p^2\,Cot^2 r\,x)\frac{dx}{q^2+x^2} = \frac{\pi}{q}\,l\left(1+p\frac{e^{qr}+e^{-qr}}{e^{qr}-e^{-qr}}\right)$ (VIII, 418*).

3) $\int l(1+p^2\,Tg^2 r\,x)\frac{Cos\,r\,x}{q^2+x^2}dx = \frac{\pi}{q}\left\{\frac{e^{qr}+e^{-qr}}{2}\,l\left(1+p\frac{e^{qr}-e^{-qr}}{e^{qr}+e^{-qr}}\right)-\frac{e^{qr}-e^{-qr}}{2}\,l(1+p)\right\}$ (VIII, 419*).

4) $\int l(1+p^2\,Tg^2 r\,x)\frac{x\,Cot\,r\,x}{q^2+x^2}dx = \pi\left\{\frac{e^{qr}+e^{-qr}}{e^{qr}-e^{-qr}}\,l\left(1+p\frac{e^{qr}-e^{-qr}}{e^{qr}+e^{-qr}}\right)-l(1+p)\right\}$ (VIII, 419*).

5) $\int l(1+p^2\,Tg^2 r\,x)\frac{x}{Sin\,r\,x}\frac{dx}{q^2+x^2} = \frac{2\pi}{e^{qr}-e^{-qr}}\,l\left(1+p\frac{e^{qr}-e^{-qr}}{e^{qr}+e^{-qr}}\right)$ (VIII, 419*).

6) $\int l(1+p^2\,Cot^2 r\,x)\frac{x}{Sin\,r\,x}\frac{dx}{q^2+x^2} = \frac{2\pi}{e^{qr}-e^{-qr}}\,l\left(1+p\frac{e^{qr}+e^{-qr}}{e^{qr}-e^{-qr}}\right)$ (VIII, 419*).

7) $\int l(1+p^2\,Tg^2 r\,x)\frac{1}{Cos\,r\,x}\frac{dx}{q^2+x^2} = \frac{\pi}{q}\frac{2}{e^{qr}+e^{-qr}}\,l\left(1+p\frac{e^{qr}-e^{-qr}}{e^{qr}+e^{-qr}}\right)$ (VIII, 419*).

8) $\int l(1+p^2\,Cot^2 r\,x)\frac{1}{Cos\,r\,x}\frac{dx}{q^2+x^2} = \frac{\pi}{q}\frac{2}{e^{qr}+e^{-qr}}\,l\left(1+p\frac{e^{qr}+e^{-qr}}{e^{qr}-e^{-qr}}\right)$ (VIII, 419*).

9) $\int l\{2(1+Cos\,p\,x)\}\frac{dx}{q^2-x^2} = \frac{1}{2}pq\pi$ (VIII, 508).

10) $\int l\{2(1-Cos\,px)\}\frac{dx}{q^2-x^2}=\frac{\pi}{2q}(pq-\pi)$ (VIII, 508).

11) $\int l(1\pm 2p\,Cos\,sx+p^2)\frac{dx}{q^2+x^2}=\frac{\pi}{q}\,l(p\pm e^{-qs})\ [p^2>1], =\frac{\pi}{q}\,l(1\pm pe^{-qs})\ [p^2<1]$ (VIII, 584)

12) $\int l(1+2r\,Cos\,sx+r^2).Sin\,px\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}(e^{-pq}-e^{pq})\,l(1+re^{-qs})-\frac{\pi}{2}e^{pq}\sum_1^d\frac{(-r)^n}{n}e^{-nqs}-$

$-\frac{\pi}{2}e^{-pq}\sum_1^d\frac{(-r)^n}{n}e^{nqs}\left[\frac{p}{s}\text{ fractionn.}\right], =\frac{\pi}{2}(e^{-pq}-e^{pq})\,l(1+re^{-qs})-$

$-\frac{\pi}{2}e^{pq}\sum_1^{d-1}\frac{(-r)^n}{n}e^{-nqs}-\frac{\pi}{2}e^{-pq}\sum_1^d\frac{(-r)^n}{n}e^{nqs}\left[\frac{p}{s}\text{ entier}\right]$ (VIII, 498).

13) $\int l(1+2r\,Cos\,sx+r^2).Cos\,px\frac{dx}{q^2+x^2}=\frac{\pi}{2q}(e^{pq}+e^{-pq})\,l(1+re^{-qs})+$

$+\frac{\pi}{2q}e^{pq}\sum_1^d\frac{(-r)^n}{n}e^{-nqs}-\frac{\pi}{2q}e^{-pq}\sum_1^d\frac{(-r)^n}{n}e^{nqs}$ (VIII, 498).

14) $\int l(1+2r\,Cos\,sx+r^2)\frac{dx}{q^2-x^2}=\frac{\pi}{q}\,Arctg\frac{r\,Sin\,qs}{1+r\,Cos\,qs}$ (VIII, 508).

15) $\int l(1+2r\,Cos\,sx+r^2).Sin\,px\frac{x\,dx}{q^2-x^2}=\pi\,Sin\,pq.Arctg\left(\frac{r\,Sin\,qs}{1+r\,Cos\,qs}\right)+$

$+\pi\sum_1^d\frac{(-r)^n}{n}Cos\{(p-ns)q\}\left[\frac{p}{s}\text{ fractionn.}\right], =\pi\,Sin\,pq.Arctg\left(\frac{r\,Sin\,qs}{1+r\,Cos\,qs}\right)+$

$+\frac{\pi}{2d}(-r)^d+\pi\sum_1^d\frac{(-r)^n}{n}Cos\{(p-ns)q\}\left[\frac{p}{s}\text{ entier}\right]$ (VIII, 509).

Dans 12) à 15) on a $d=E\frac{p}{s}$.

16) $\int l(1+2r\,Cos\,sx+r^2).Cos\,px\frac{dx}{q^2-x^2}=\frac{\pi}{q}Cos\,pq.Arctg\left(\frac{r\,Sin\,qs}{1+r\,Cos\,qs}\right)-$

$-\frac{\pi}{q}\sum_1^d\frac{(-r)^n}{n}Sin\{(p-ns)q\}$ (VIII, 509).

17) $\int l(1+2r\,Cos\,sx+r^2).Sin^{2a+1}x\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+1}}(e^q-e^{-q})^{2a+1}\,l(1+re^{-qs})\,[s>2a+1],$

$=\frac{(-1)^{a-1}\pi}{2^{2a+1}}\{(e^q-e^{-q})^{2a+1}\,l(1+re^{-qs})+r\}\ [s=2a+1]$ (V, 110).

18) $\int l(1+2r\,Cos\,sx+r^2).Cos^a x\frac{dx}{q^2+x^2}=\frac{\pi}{2^a q}(e^q+e^{-q})^a\,l(1+re^{-qs})\ [s\geq a]$ (V, 110).

19) $\int l(1+2r\,Cos\,sx+r^2)\,.\,Sin^{2a}x\,.\,Sin\,px\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+1}}(e^q-e^{-q})^{2a}(e^{pq}-e^{-pq})$

$l(1+re^{-qs})\left[\begin{matrix}2p>4a<s\\ \text{ou } 4a>2p<s\end{matrix}\right],=\frac{(-1)^{a-1}\pi}{2^{2a+1}}\{(e^q-e^{-q})^{2a}(e^{pq}-e^{-pq})\,l(1+re^{-qs})-r\}$

$\left[\begin{matrix}p=s-2a \text{ et } 2p>s>4a\\ \text{ou } 2p<s<4a\end{matrix}\right]$ (V, 110).

20) $\int l(1+2r\,Cos\,sx+r^2)\,.\,Sin^{2a+1}x\,.\,Cos\,px\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+2}}(e^q-e^{-q})^{2a+1}(e^{pq}+e^{-pq})$

$l(1+re^{-qs})\left[\begin{matrix}2p>4a+2<s\\ \text{ou } 4a+2>2p<s\end{matrix}\right],=\frac{(-1)^{a-1}\pi}{2^{2a+2}}\{(e^q-e^{-q})^{2a+1}(e^{pq}+e^{-pq})\,l(1+re^{-qs})-r\}$

$\left[\begin{matrix}p=s-2a-1 \text{ et } 2p>s>4a+2\\ \text{ou } 2p<s<4a+2\end{matrix}\right]$ (V, 110).

21) $\int l(1+2r\,Cos\,sx+r^2)\,.\,Cos^a x\,.\,Cos\,p\,x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+1}q}(e^q+e^{-q})^a(e^{pq}+e^{-pq})\,l(1+re^{-qs})$

$\left[\begin{matrix}2p\geqq 2a\leqq s\\ \text{ou } 2a\geqq 2p\leqq s\end{matrix}\right]$ (V, 110).

22) $\int l(1+2r\,Cos\,sx+r^2)\,\frac{dx}{(q^2+x^2)^2}=\frac{\pi}{2q^3}\,l(1+re^{-qs})+\frac{\pi}{2q^2}\,\frac{re^{-qs}}{1+re^{-qs}}$ (IV, 539).

23) $\int l(1+2r\,Cos\,sx+r^2)\,\frac{dx}{1+x^{2a}}=\frac{\pi}{a}\,l(1+re^{-s})-\frac{\pi}{a}\sum_1^{\frac{1}{2}(a-1)}Cos\frac{n\pi}{a}\,.\,l\Big\{1+2re^{-s\,Cos\frac{n\pi}{a}}$

$Cos\left(s\,Sin\frac{n\pi}{a}\right)+r^2e^{-2s\,Cos\frac{n\pi}{a}}\Big\}-\frac{2\pi}{a}\sum_1^{\frac{1}{2}(a-1)}Sin\frac{n\pi}{a}\,.$

$Arcsin\left\{\frac{re^{-s\,Cos\frac{n\pi}{a}}\,Sin\left(s\,Sin\frac{n\pi}{a}\right)}{\sqrt{\left\{1+2re^{-s\,Cos\frac{n\pi}{a}}\,Cos\left(s\,Sin\frac{n\pi}{a}\right)+r^2e^{-2s\,Cos\frac{n\pi}{a}}\right\}}}\right\}\left[\begin{matrix}a\\ \text{impair}\end{matrix}\right],=$

$=\frac{\pi}{a}\sum_0^{\frac{1}{2}a-1}Cos\left(\frac{2n+1}{2a}\pi\right).\,l\left\{1+2re^{-s\,Cos\left(\frac{2n+1}{2a}\pi\right)}Cos\left\{s\,Sin\left(\frac{2n+1}{2a}\pi\right)\right\}+\right.$

$\left.+r^2e^{-2s\,Cos\left(\frac{2n+1}{2a}\pi\right)}\right\}+\frac{2\pi}{a}\sum_0^{\frac{1}{2}a-1}Sin\left(\frac{2n+1}{2a}\pi\right).$

$Arcsin\left\{\frac{re^{-s\,Cos\left(\frac{2n+1}{2a}\pi\right)}Sin\left\{s\,Sin\left(\frac{2n+1}{2a}\pi\right)\right\}}{\sqrt{\left\{1+2re^{-s\,Cos\left(\frac{2n+1}{2a}\pi\right)}Cos\left\{s\,Sin\left(\frac{2n+1}{2a}\pi\right)\right\}+r^2e^{-2s\,Cos\left(\frac{2n+1}{2a}\pi\right)}\right\}}}\right\}$

$\left[\begin{matrix}a\\ \text{pair}\end{matrix}\right]$ (IV, 538). Partout on a $[r^2<1]$.

1) $\int l(rx) . Sin px \frac{x\,dx}{q^2+x^2} = \frac{\pi}{4} e^{-pq} \{2\,l(qr) - Ei(pq)\} - \frac{\pi}{4} e^{pq} Ei(-pq)$ (VIII, 456).

2) $\int l(rx) . Cos px \frac{dx}{q^2+x^2} = \frac{\pi}{4q} e^{-pq} \{2\,l(qr) - Ei(pq)\} + \frac{\pi}{4q} e^{pq} Ei(-pq)$ (VIII, 456).

3) $\int l\left(\frac{r}{x}\right) . Sin px \frac{x\,dx}{q^2+x^2} = \frac{\pi}{4} \{e^{-pq} Ei(pq) + e^{pq} Ei(-pq)\} + \frac{\pi}{2} e^{-pq} l \frac{r}{q}$ (IV, 537*).

4) $\int l\left(\frac{r}{x}\right) . Cos px \frac{dx}{q^2+x^2} = \frac{\pi}{4q} \{e^{-pq} Ei(pq) - e^{pq} Ei(-pq)\} + \frac{\pi}{2q} e^{-pq} l \frac{r}{q}$ (IV, 537*).

5) $\int l(rx) . Sin px \frac{x\,dx}{q^2-x^2} = \frac{\pi}{2} \left\{\frac{\pi}{2} Sin pq - Ci(pq) . Cos pq - Si(pq) . Sin pq + Cos pq . l(qr)\right\}$

V. T. 422, N. 7 & T. 161, N. 4.

6) $\int l(rx) . Cos px \frac{dx}{q^2-x^2} = \frac{\pi}{2q} \left\{\frac{\pi}{2} Cos pq + Ci(pq) . Sin pq - Si(pq) . Cos pq + Sin pq . l(qr)\right\}$

V. T. 161, N. 4 & T. 422, N. 8.

7) $\int l\left(\frac{r}{x}\right) . Sin px \frac{x\,dx}{q^2-x^2} = \frac{\pi}{2} \left\{Ci(pq) . Cos pq + Si(pq) . Sin pq - \frac{\pi}{2} Sin pq + Cos pq . l \frac{r}{q}\right\}$

(IV, 537*).

8) $\int l\left(\frac{r}{x}\right) . Cos px \frac{dx}{q^2-x^2} = \frac{\pi}{2q} \left\{Si(pq) . Cos pq - Ci(pq) . Sin pq - \frac{\pi}{2} Cos pq + Sin pq . l \frac{r}{q}\right\}$

(IV, 537*).

9) $\int l(rx) . Sin px \frac{x\,dx}{q^4-x^4} = \frac{\pi}{8q^2} \{\pi\, Sin pq - 2\, Si(pq) . Sin pq - 2\, Ci(pq) . Cos pq - e^{-pq} Ei(pq) -$

$- e^{pq} Ei(-pq) + (e^{-pq} - Cos pq)\, 2\, l(qr)\}$ V. T. 422, N. 1, 5.

10) $\int l(rx) . Sin px \frac{x^3\,dx}{q^4-x^4} = \frac{\pi}{8} \{\pi\, Sin pq - 2\, Si(pq) . Sin pq - 2\, Ci(pq) . Cos pq + e^{-pq} Ei(pq) +$

$+ e^{pq} Ei(-pq) - (e^{-pq} + Cos pq)\, 2\, l(qr)\}$ V. T. 422, N. 1, 5.

11) $\int l(rx) . Cos px \frac{dx}{q^4-x^4} = \frac{\pi}{8q^3} \{\pi\, Cos pq - 2\, Si(pq) . Cos pq + 2\, Ci(pq) . Sin pq - e^{-pq} Ei(pq) +$

$+ e^{pq} Ei(-pq) + (e^{-pq} + Sin pq)\, 2\, l(qr)\}$ V. T. 422, N. 2, 6.

12) $\int l(rx) . Cos px \frac{x^2\,dx}{q^4-x^4} = \frac{\pi}{8q} \{\pi\, Cos pq - 2\, Si(pq) . Cos pq + 2\, Ci(pq) . Sin pq + e^{-pq} Ei(pq) -$

$- e^{pq} Ei(-pq) - (e^{-pq} - Sin pq)\, 2\, l(qr)\}$ V. T. 422, N. 2, 6.

1) $\int \frac{l\,Sin\,r\,x}{x^4+2p^2x^2\,Cos\,2\lambda+p^4}\,dx = \frac{\pi}{8p^3}\,Sec\,\lambda\,.\,l\left\{\frac{1-2e^{-2pr\,Cos\,\lambda}\,Cos\,(2pr\,Sin\,\lambda)+e^{-4pr\,Cos\,\lambda}}{4}\right\} -$

$-\frac{\pi}{4p^3}\,Cosec\,\lambda\,.\,Arcsin\left\{\frac{e^{-2pr\,Cos\,\lambda}\,Sin\,(2pr\,Sin\,\lambda)}{\sqrt{1-2e^{-2pr\,Cos\,\lambda}\,Cos(2pr\,Sin\,\lambda)+e^{-4pr\,Cos\,\lambda}}}\right\}$ (IV, 539).

2) $\int \frac{l\,Cos\,r\,x}{x^4+2p^2x^2\,Cos\,2\lambda+p^4}\,dx = \frac{\pi}{8p^3}\,Sec\,\lambda\,.\,l\left\{\frac{1+2e^{-2pr\,Cos\,\lambda}\,Cos\,(2pr\,Sin\,\lambda)+e^{-4pr\,Cos\,\lambda}}{4}\right\} +$

$+\frac{\pi}{4p^3}\,Cosec\,\lambda\,.\,Arcsin\left\{\frac{e^{-2pr\,Cos\,\lambda}\,Sin\,(2pr\,Sin\,\lambda)}{\sqrt{1+2e^{-2pr\,Cos\,\lambda}\,Cos\,(2pr\,Sin\,\lambda)+e^{-4pr\,Cos\,\lambda}}}\right\}$ (IV, 539).

3) $\int \frac{l\,Tg\,r\,x}{x^4+2p^2x^2\,Cos\,2\lambda+p^4}\,dx = \frac{\pi}{8p^3}\,Sec\,\lambda\,.\,l\left\{\frac{1-2e^{-2pr\,Cos\,\lambda}\,Cos\,(2pr\,Sin\,\lambda)+e^{-4pr\,Cos\,\lambda}}{1+2e^{-2pr\,Cos\,\lambda}\,Cos\,(2pr\,Sin\,\lambda)+e^{-4pr\,Cos\,\lambda}}\right\} -$

$-\frac{\pi}{4p^3}\,Cosec\,\lambda\,.\,Arcsin\left\{\frac{2e^{-2pr\,Cos\,\lambda}\,Sin\,(2pr\,Sin\,\lambda)}{\sqrt{1-2e^{-4pr\,Cos\,\lambda}\,Cos\,(4pr\,Sin\,\lambda)+e^{-8pr\,Cos\,\lambda}}}\right\}$ V. T. 423, N. 1, 2.

4) $\int l(1+2q\,Cos\,r\,x+q^2)\frac{dx}{x^4+2p^2x^2\,Cos\,2\lambda+p^4} = \frac{\pi}{4p^3}\,Sec\,\lambda\,.\,l\{1+2q\,e^{-pr\,Cos\,\lambda}\,Cos\,(pr\,Sin\,\lambda)+$

$+q^2e^{-2pr\,Cos\,\lambda}\}+\frac{\pi}{2p^3}\,Cosec\,\lambda\,.\,Arcsin\,\frac{q\,e^{-pr\,Cos\,\lambda}\,Sin\,(pr\,Sin\,\lambda)}{\sqrt{1+2q\,e^{-pr\,Cos\,\lambda}\,Cos\,(pr\,Sin\,\lambda)+q^2\,e^{-2pr\,Cos\,\lambda}}}\,[q^2<1], =$

$=\frac{\pi}{4p^3}\,Sec\,\lambda\,.\,l\{q^2+2q\,e^{-pr\,Cos\,\lambda}\,Cos\,(pr\,Sin\,\lambda)+e^{-2pr\,Cos\,\lambda}\}+\frac{\pi}{2p^3}\,Cosec\,\lambda\,.$

$Arcsin\,\frac{e^{-pr\,Cos\,\lambda}\,Sin\,(pr\,Sin\,\lambda)}{\sqrt{q^2+2q\,e^{-pr\,Cos\,\lambda}\,Cos\,(pr\,Sin\,\lambda)+e^{-2pr\,Cos\,\lambda}}}\,[q^2>1]$ (IV, 540).

5) $\int \frac{x^p\,Sin\,(q\,l\,x)}{1+2x\,Cos\,\lambda+x^2}\,dx = \frac{\pi}{Sin\,\lambda}\;\frac{\{e^{q(\pi+\lambda)}-e^{-q(\pi+\lambda)}\}\,Sin\,\{p(\pi-\lambda)\}-\{e^{q(\pi-\lambda)}-e^{q(\lambda-\pi)}\}\,Sin\,\{p(\pi+\lambda)\}}{e^{2q\pi}-2\,Cos\,2p\pi+e^{-2q\pi}}$

6) $\int \frac{x^p\,Cos\,(q\,l\,x)}{1+2x\,Cos\,\lambda+x^2}\,dx = \frac{\pi}{Sin\,\lambda}\;\frac{\{e^{q(\pi+\lambda)}+e^{-q(\pi+\lambda)}\}\,Cos\,\{p(\pi-\lambda)\}-\{e^{q(\pi-\lambda)}+e^{q(\lambda-\pi)}\}\,Cos\,\{p(\pi+\lambda)\}}{e^{2q\pi}-2\,Cos\,2p\pi+e^{-2q\pi}}$

Sur 5) et 6) voyez Cauchy, A. M. 17, 84.

7) $\int \frac{Cos\,(q\,l\,x)}{x^p-2\,Cos\,\lambda+x^{-p}}\,\frac{dx}{x} = \frac{\pi}{p\,Sin\,\lambda}\;\frac{e^{\frac{q}{p}(\lambda-\pi)}-e^{\frac{q}{p}(\pi-\lambda)}}{e^{-\frac{q\pi}{p}}-e^{\frac{q\pi}{p}}}$ (IV, 540).

8) $\int \frac{l\, Sin\, rx}{1-2p\, Cos\, 2rx+p^2}\, \frac{dx}{q^2+x^2} = \frac{\pi}{2q(1-pe^{-2qr})(1-pe^{2qr})} \left\{ l\frac{1-e^{-2qr}}{2} - \right.$

$\left. - \frac{p}{1-p^2}(e^{2qr}-e^{-2qr})\, l(1-p) \right\}$ (H, 151).

9) $\int \frac{l\, Sin\, rx}{1-2p\, Cos\, 2rx+p^2}\, \frac{dx}{q^2-x^2} = \frac{\pi}{2q(1-2p\, Cos\, 2qr+p^2)} \left\{ \frac{2p}{1-p^2}\, Sin\, 2qr . l(1-p) + qr - \frac{1}{2}\pi \right\}$

(H, 151).

10) $\int \frac{l(\frac{1}{2}\, Sin\, rx)}{1-2p\, Cos\, rx+p^2}\, \frac{dx}{q^2+x^2} = \frac{\pi}{2q(1-pe^{-qr})(1-pe^{qr})} \left\{ l\frac{1-e^{-2qr}}{4} - \right.$

$\left. - \frac{p}{1-p^2}(e^{qr}-e^{-qr})\, l(1-p^2) \right\}$ (H, 152).

11) $\int \frac{l(\frac{1}{2}\, Sin\, rx)}{1-2p\, Cos\, rx+p^2}\, \frac{dx}{q^2-x^2} = \frac{\pi}{2q(1-2p\, Cos\, qr+p^2)} \left\{ \frac{2p}{1-p^2}\, Sin\, qr . l(1-p^2) + qr - \frac{1}{2}\pi \right\}$

(H, 153).

12) $\int \frac{l\, Cos\, rx}{1-2p\, Cos\, 2rx+p^2}\, \frac{dx}{q^2+x^2} = \frac{\pi}{2q(1-pe^{-qr})(1-pe^{qr})} \left\{ l\frac{1+e^{-2qr}}{2} - \right.$

$\left. - \frac{p}{1-p^2}(e^{2qr}-e^{-2qr})\, l(1+p) \right\}$ (H, 151).

13) $\int \frac{l\, Cos\, rx}{1-2p\, Cos\, 2rx+p^2}\, \frac{dx}{q^2-x^2} = \frac{\pi}{2q(1-2p\, Cos\, 2qr+p^2)} \left\{ \frac{2p}{1-p^2}\, Sin\, 2qr . l(1+p) + qr \right\}$

(H, 151).

14) $\int \frac{l\, Tg\, rx}{1-2p\, Cos\, 2rx+p^2}\, \frac{dx}{q^2+x^2} = \frac{\pi}{2q(1-pe^{-qr})(1-pe^{qr})} \left\{ l\frac{e^{qr}-e^{-qr}}{e^{qr}+e^{-qr}} + \right.$

$\left. + \frac{p}{1-p^2}(e^{2qr}-e^{-2qr})\, l\frac{1+p}{1-p} \right\}$ (H, 152).

15) $\int \frac{l\, Tg\, rx}{1-2p\, Cos\, 2rx+p^2}\, \frac{dx}{q^2-x^2} = \frac{\pi}{q(1-2p\, Cos\, 2qr+p^2)} \left\{ \frac{p}{1-p^2}\, Sin\, 2qr . l\frac{1-p}{1+p} - \frac{1}{4}\pi \right\}$

(H, 153).

Dans 8) à 15) on a $[p^2 < 1]$.

16) $\int l\left(\frac{1+Tg\, qx}{1-Tg\, qx}\right) \frac{1}{p^2+x^2}\, \frac{dx}{x} = \frac{\pi}{p^2}\, Arctg\, \frac{e^{pq}-e^{-pq}}{e^{pq}+e^{-pq}}$ (IV, 540).

17) $\int \frac{\pi(1-Cos\, qx) - 2\, Sin\, qx . lx}{\frac{1}{4}\pi^2+(lx)^2}\, \frac{dx}{x} = 2\pi(1-e^{-q})$ (IV, 540).

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18) $\int \frac{\frac{1}{2}\pi(Cos\,px - Cos\,qx) + (Sin\,px - Sin\,qx)\,lx}{\frac{1}{4}\pi^2 + (lx)^2}\frac{dx}{x} = \pi(e^{-p} - e^{-q})$ Cauchy, A. M. 17, 84.

19) $\int lx\,.\,Sin\,px\,.\,Sin^{2a}x\,\frac{dx}{x^{2b-1}} = \frac{(-1)^b\pi}{2^{2a+1}\,1^{2b-2|1}}\Big\{\binom{2a}{a}q^{2b-2}\{lq - Z'(2b-1)\} +$

$+\sum_1^p(-1)^n\binom{2a}{a-n}\big[(2n+q)^{2b-2}\{l(2n+q) - Z'(2b-1)\} -$

$-(2n-q)^{2b-2}\{l(2n-q) - Z'(2b-1)\}\big]\Big\}.$

20) $\int lx\,.\,Sin\,px\,.\,Sin^{2a+1}x\,\frac{dx}{x^{2b}} = \frac{(-1)^b\pi}{2^{2a+2}\,1^{2b-1|1}}\sum_0^p(-1)^n\binom{2a+1}{a-n}\Big[(2n+1+q)^{2b-1}$

$\{l(2n+1+q) - Z'(2b)\} - (2n+1-q)^{2b-1}\{l(2n+1-q) - Z'(2b)\}\Big].$

21) $\int lx\,.\,Cos\,px\,.\,Sin^{2a}x\,\frac{dx}{x^{2b}} = \frac{(-1)^{b-1}\pi}{2^{2a+1}\,1^{2b-1|1}}\Big\{\binom{2a}{a}q^{2b-1}\{lq - Z'(2b)\} + \sum_1^p(-1)^n\binom{2a}{a-n}$

$\big[(2n+q)^{2b-1}\{l(2n+q) - Z'(2b)\} + (2n-q)^{2b-1}\{l(2n-q) - Z'(2b)\}\big]\Big\}.$

22) $\int lx\,.\,Cos\,px\,.\,Sin^{2a+1}x\,\frac{dx}{x^{2b+1}} = \frac{(-1)^{b-1}\pi}{2^{2a+2}\,1^{2b|1}}\sum_0^p(-1)^n\binom{2a+1}{a-n}\big[(2n+1+q)^{2b}$

$\{l(2n+1+q) - Z'(2b-1)\} + (2n+1-q)^{2b}\{l(2n+1-q) - Z'(2b-1)\}\big].$

Dans 19) à 22) on a $[a \geqq b]$. Voir Enneper, Schl. Z. 11, 251.

1) $\int l\,Sin\,qx\,\frac{r+sx}{x^2+2px\,Cos\,\lambda+p^2}\,dx = \frac{\pi}{p\,Sin\,\lambda}\left(\frac{1}{2}s^2 - r\right)l2 +$

$+\frac{r-ps\,Cos\,\lambda}{2p\,Sin\,\lambda}\pi\,l\{1 - 2e^{-2pq\,Sin\,\lambda}Cos(2pq\,Cos\,\lambda) + e^{-4pq\,Sin\,\lambda}\} -$

$-s\pi\,Arcsin\left\{\frac{e^{-2pq\,Sin\,\lambda}Sin(2pq\,Cos\,\lambda)}{\sqrt{1 - 2e^{-2pq\,Sin\,\lambda}Cos(2pq\,Cos\,\lambda) + e^{-4pq\,Sin\,\lambda}}}\right\}$ (IV, 540).

2) $\int l\,Cos\,qx\,\frac{r+sx}{x^2+2px\,Cos\,\lambda+p^2}\,dx = \frac{\pi}{p\,Sin\,\lambda}\left(\frac{1}{2}s^2 - r\right)l2 +$

$+\frac{r-ps\,Cos\,\lambda}{2p\,Sin\,\lambda}\pi\,l\{1 + 2e^{-2pq\,Sin\,\lambda}Cos(2pq\,Cos\,\lambda) + e^{-4pq\,Sin\,\lambda}\} +$

$+s\pi\,Arcsin\left\{\frac{e^{-2pq\,Sin\,\lambda}Sin(2pq\,Cos\,\lambda)}{\sqrt{1 + 2e^{-2pq\,Sin\,\lambda}Cos(2pq\,Cos\,\lambda) + e^{-4pq\,Sin\,\lambda}}}\right\}$ (IV, 540).

F. Alg. rat. ent.; Logarithmique: Circulaire Directe.	TABLE 424, suite.	Lim. $-\infty$ et ∞.

3) $\int l\,Tg\,qx\,\frac{r+sx}{x^2+2px\,Cos\lambda+p^2}\,dx=\frac{r-ps\,Cos\lambda}{2p\,Sin\lambda}\,\pi\,l\,\frac{e^{2pq\,Sin\lambda}-2\,Cos(2pq\,Cos\lambda)+e^{-2pq\,Sin\lambda}}{e^{2pq\,Sin\lambda}+2\,Cos(2pq\,Cos\lambda)+e^{-2pq\,Sin\lambda}}-$

$-s\pi\,Arcsin\left\{\frac{2e^{-2pq\,Sin\lambda}\,Sin(2pq\,Cos\lambda)}{\sqrt{1-2e^{-4pq\,Sin\lambda}Cos(4pq\,Cos\lambda)+e^{-8pq\,Sin\lambda}}}\right\}$ V. T. 424, N. 1, 2.

F. Alg. rat. ent.; Logarithmique de Circul. Directe.	TABLE 425.	Lim. 0 et $\frac{\pi}{4}$.

1) $\int l\,Sin\,x\,.\,x^{p-1}\,dx=-\frac{1}{2p}\left(\frac{\pi}{4}\right)^p\left\{l2-2+\sum_{1}^{\infty}\frac{4}{p+2m}\sum_{1}^{\infty}\frac{1}{(4n)^{2m}}\right\}$ V. T. 204, N. 6.

2) $\int l\,Tg\,x\,\frac{x}{Sin\,2x}\,dx=-\frac{1}{64}\pi^3$ V. T. 286, N. 16.

3) $\int (l\,Tg\,x)^3\,\frac{x}{Sin\,2x}\,dx=-\frac{5}{512}\pi^5$ V. T. 286, N. 19.

4) $\int (l\,Tg\,x)^5\,\frac{x}{Sin\,2x}\,dx=-\frac{61}{3072}\pi^7$ V. T. 286, N. 20.

5) $\int (l\,Tg\,x)^q\,\frac{x}{Sin\,2x}\,dx=\frac{1}{2}\,Cos\,q\pi\,.\,\Gamma(q+1)\,.\,\sum_{0}^{\infty}\frac{(-1)^n}{(2n+1)^{q+2}}$ V. T. 286, N. 21.

6) $\int Sin(2p\,l\,Tg\,x)\,\frac{x}{Sin\,2x}\,dx=\frac{-\pi}{16p}\,\frac{(1-e^{p\pi})^2}{1+e^{2p\pi}}$ V. T. 304, N. 3.

7) $\int \frac{x}{\sqrt{l\,Cot\,x}}\,\frac{dx}{Sin\,2x}=\frac{1}{2}\sqrt{\pi}\,.\,\sum_{0}^{\infty}\frac{(-1)^n}{\sqrt{2n+1}^3}$ V. T. 297, N. 9.

8) $\int \frac{x}{\sqrt{l\,Cot\,x}^3}\,\frac{dx}{Sin\,2x}=\infty$ V. T. 304, N. 24.

9) $\int \frac{l\,Tg\,x}{\{\pi^2+(l\,Tg\,x)^2\}^2}\,\frac{x}{Sin\,2x}\,dx=\frac{\pi-3}{16\pi}$ V. T. 301, N. 1.

10) $\int \frac{l\,Tg\,x}{\{\pi^2+(l\,Tg^2\,x)^2\}^2}\,\frac{x}{Sin\,2x}\,dx=\frac{1}{64\pi}(1-l2)$ V. T. 301, N. 2.

11) $\int \frac{l\,Tg\,x}{\{q^2+(l\,Tg\,x)^2\}^2}\,\frac{x}{Sin\,2x}\,dx=\frac{1}{16q}\left\{Z'\left(\frac{2q+3\pi}{4\pi}\right)-Z'\left(\frac{2q+\pi}{4\pi}\right)-\frac{\pi}{q}\right\}$ V. T. 301, N. 3.

F. Alg. rat. ent.; $[p^2<1]$.
Logar. $l(1-p^2 Sin^2 x)$, $l(1-p^2 Cos^2 x)$; TABLE 426. Lim. 0 et $\frac{\pi}{2}$.
Circ. Dir. en dén. $\sqrt{1-p^2 Sin^2 x}$, $\sqrt{1-p^2 Sin^2 x}^3$;

1) $$\int l(1-p^2 Sin^2 x) . Sin\, x . Cos\, x . \sqrt{1-p^2 Sin^2 x} . x\, dx = \frac{1}{27p^4}\Big[3\pi\Big\{1-\frac{3}{2}l(1-p^2)\Big\}\sqrt{1-p^2}^3 + \Big\{2(11-11p^2+3p^4)-\frac{3}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)-(2-p^2)\{14-3\,l(1-p^2)\}E'(p)\Big].$$

2) $$\int l(1-p^2 Cos^2 x) . Sin\, x . Cos\, x . \sqrt{1-p^2 Cos^2 x} . x\, dx = \frac{1}{27p^4}\Big[-3\pi-\Big\{2(11-11p^2+3p^4)+ -\frac{3}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)+(2-p^2)\{14-3\,l(1-p^2)\}E'(p)\Big].$$

3) $$\int l(1-p^2 Sin^2 x)\frac{Sin\, x . Cos\, x}{\sqrt{1-p^2 Sin^2 x}}x\, dx = \frac{1}{p^2}\Big[\pi\Big\{1-\frac{1}{2}l(1-p^2)\Big\}\sqrt{1-p^2}+(2-p^2)F'(p)- -\Big\{4-\frac{1}{2}l(1-p^2)\Big\}E'(p)\Big].$$

4) $$\int l(1-p^2 Sin^2 x)\frac{Sin\, x . Cos^3 x}{\sqrt{1-p^2 Sin^2 x}}x\, dx = \frac{1}{27p^4}\Big[-3\Big\{8-\frac{3}{2}l(1-p^2)\Big\}\sqrt{1-p^2}^3 - -\Big\{(32-59p^2+21p^4)+\frac{3}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)+\Big\{2(40-47p^2)- -\frac{3}{2}(5-7p^2)\,l(1-p^2)\Big\}E'(p)\Big].$$

5) $$\int l(1-p^2 Sin^2 x)\frac{Sin^3 x . Cos\, x}{\sqrt{1-p^2 Sin^2 x}}x\, dx = \frac{1}{27p^4}\Big[3\Big\{(8+p^2)-\frac{3}{2}(2+p^2)\,l(1-p^2)\Big\}\pi\sqrt{1-p^2} + +\Big\{(32-5p^2-6p^4)+\frac{3}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)-\Big\{2(40+7p^2)+ -\frac{3}{2}(5+2p^2)\,l(1-p^2)\Big\}E'(p)\Big].$$

6) $$\int l(1-p^2 Cos^2 x)\frac{Sin\, x . Cos\, x}{\sqrt{1-p^2 Cos^2 x}}x\, dx = \frac{1}{p^2}\Big[-\pi-(2-p^2)F'(p)+\Big\{4-\frac{1}{2}l(1-p^2)\Big\}E'(p)\Big].$$

7) $$\int l(1-p^2 Cos^2 x)\frac{Sin\, x . Cos^3 x}{\sqrt{1-p^2 Cos^2 x}}x\, dx = \frac{1}{27p^4}\Big[-24\pi-\Big\{(32-5p^2-6p^4) + +\frac{3}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)+\Big\{2(40+7p^2)-\frac{3}{2}(5+2p^2)\,l(1-p^2)\Big\}E'(p)\Big].$$

8) $$\int l(1-p^2 Cos^2 x)\frac{Sin^3 x . Cos\, x}{\sqrt{1-p^2 Cos^2 x}}x\, dx = \frac{1}{27p^4}\Big[3(8-9p^2)\pi+\Big\{(32-59p^2+21p^4)+ +\frac{3}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)-\Big\{2(40-47p^2)-\frac{3}{2}(5-7p^2)\,l(1-p^2)\Big\}E'(p)\Big].$$

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9) $$\int l(1-p^2 Sin^2 x)\frac{Sin\,x\,.\,Cos\,x}{\sqrt{1-p^2 Sin^2 x}^3}x\,dx=\frac{1}{p^2}\left[\left\{1+\frac{1}{2}l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}-\right.$$
$$\left.-\left\{2+\frac{1}{2}l(1-p^2)\right\}F'(p)\right].$$

10) $$\int l(1-p^2 Sin^2 x)\frac{Sin\,x\,.\,Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^3}x\,dx=\frac{1}{p^4}\left[-\pi l(1-p^2).\sqrt{1-p^2}+\left\{(4-3p^2)+\right.\right.$$
$$\left.\left.+\frac{1}{2}(1-p^2)l(1-p^2)\right\}F'(p)-\left\{4-\frac{1}{2}l(1-p^2)\right\}E'(p)\right].$$

11) $$\int l(1-p^2 Sin^2 x)\frac{Sin\,x\,.\,Cos^5 x}{\sqrt{1-p^2 Sin^2 x}^3}x\,dx=\frac{1}{27p^6}\left[-12\{2-3l(1-p^2)\}\pi\sqrt{1-p^2}^3-\right.$$
$$-\left\{2(70-124p^2+51p^4)+\frac{3}{2}(10-9p^2)(1-p^2)l(1-p^2)\right\}F'(p)+$$
$$\left.+\{2(94-101p^2)-3(7-8p^2)l(1-p^2)\}E'(p)\right].$$

12) $$\int l(1-p^2 Sin^2 x)\frac{Sin^3 x\,.\,Cos\,x}{\sqrt{1-p^2 Sin^2 x}^3}x\,dx=\frac{1}{p^4}\left[\left\{p^2+\frac{1}{2}(2-p^2)l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}-\right.$$
$$\left.-\left\{(4-p^2)+\frac{1}{2}l(1-p^2)\right\}F'(p)+\left\{4-\frac{1}{2}l(1-p^2)\right\}E'(p)\right].$$

13) $$\int l(1-p^2 Sin^2 x)\frac{Sin^3 x\,.\,Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^3}x\,dx=\frac{1}{27p^6}\left[3\{8(1-p^2)-3(4-p^2)l(1-p^2)\}\sqrt{1-p^2}+\right.$$
$$+\{7(20-20p^2+3p^4)+15(1-p^2)l(1-p^2)\}F'(p)+$$
$$\left.+(2-p^2)\left\{-94+\frac{21}{2}l(1-p^2)\right\}E'(p)\right].$$

14) $$\int l(1-p^2 Sin^2 x)\frac{Sin^5 x\,.\,Cos\,x}{\sqrt{1-p^2 Sin^2 x}^3}x\,dx=\frac{1}{27p^6}\left[3\left\{(8-16p^2-p^4)+\frac{3}{2}(8-4p^2-p^4)\right.\right.$$
$$\left.l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}-\left\{2(70-16p^2-3p^4)+\frac{3}{2}(10-p^2)l(1-p^2)\right\}F'(p)+$$
$$\left.+\{2(94+7p^2)-3(7+p^2)l(1-p^2)\}E'(p)\right].$$

15) $$\int l(1-p^2 Cos^2 x)\frac{Sin\,x\,.\,Cos\,x}{\sqrt{1-p^2 Cos^2 x}^3}x\,dx=\frac{1}{p^2}\left[-\pi+\left\{2+\frac{1}{2}l(1-p^2)\right\}F'(p)\right].$$

16) $$\int l(1-p^2 Cos^2 x)\frac{Sin\,x\,.\,Cos^3 x}{\sqrt{1-p^2 Cos^2 x}^3}x\,dx=\frac{1}{p^4}\left[\left\{(4-p^2)+\frac{1}{2}l(1-p^2)\right\}F'(p)-\right.$$
$$\left.-\left\{4-\frac{1}{2}l(1-p^2)\right\}E'(p)\right].$$

17) $\int l(1-p^2 \, Cos^2 x) \frac{Sin\, x \,.\, Cos^5 x}{\sqrt{1-p^2 \, Cos^2 x}^3} x\, dx = \frac{1}{27p^6}\Big[24\pi + \Big\{2(70-16p^2-3p^4) +$
$+\frac{3}{2}\{(10-p^2)\, l(1-p^2)\}F'(p) - \{2(94+7p^2) - 3(7+p^2)\, l(1-p^2)\}E'(p)\Big]$.

18) $\int l(1-p^2 \, Cos^2 x) \frac{Sin^3 x \,.\, Cos\, x}{\sqrt{1-p^2 \, Cos^2 x}^3} x\, dx = \frac{1}{p^4}\Big[-p^2\pi - \Big\{(4-3p^2) +$
$+\frac{1}{2}(1-p^2)\, l(1-p^2)\Big\}F'(p) + \Big\{4 - \frac{1}{2} l(1-p^2)\Big\}E'(p)\Big]$.

19) $\int l(1-p^2 \, Cos^2 x) \frac{Sin^3 x \,.\, Cos^3 x}{\sqrt{1-p^2 \, Cos^2 x}^3} x\, dx = \frac{1}{27p^6}\Big[-24\pi - \{7(20-20p^2+3p^4) +$
$+15(1-p^2)\, l(1-p^2)\}F(p) + (2-p^2)\Big\{94 - \frac{21}{2} l(1-p^2)\Big\}E'(p)\Big]$.

20) $\int l(1-p^2 \, Cos^2 x) \frac{Sin^5 x \,.\, Cos\, x}{\sqrt{1-p^2 \, Cos^2 x}^3} x\, dx = \frac{1}{27p^6}\Big[3(8-9p^4)\pi + \Big\{2(70-124p^2+51p^4) +$
$+\frac{3}{2}(10-9p^2)(1-p^2)\, l(1-p^2)\Big\}F'(p) + \Big\{-2(94-101p^2) + \frac{3}{2}(7-8p^2)\, l(1-p^2)\Big\}E'(p)\Big]$.

Sur 1) à 20) voyez M, D. 16, 28.

F. Alg. rat. ent.;
Logar. $l(1-p^2 \, Sin^2 x)$, $l(1-p^2 \, Cos^2 x)$; TABLE 427. Lim. 0 et $\frac{\pi}{2}$.
Circ. Dir. en dén. $\sqrt{1-p^2 \, Sin^2 x}^5$; $[p^2<1]$.

1) $\int l(1-p^2 \, Sin^2 x) \frac{Sin\, x \,.\, Cos\, x}{\sqrt{1-p^2 \, Sin^2 x}^5} x\, dx = \frac{1}{9p^4(1-p^2)}\Big[\Big\{1 + \frac{3}{2} l(1-p^2)\Big\}\frac{\pi}{\sqrt{1-p^2}} +$
$+3(2-p^2)F'(p) - \Big\{8 + \frac{3}{2} l(1-p^2)\Big\}E'(p)\Big]$.

2) $\int l(1-p^2 \, Sin^2 x) \frac{Sin\, x \,.\, Cos^3 x}{\sqrt{1-p^2 \, Sin^2 x}^5} x\, dx = \frac{1}{9p^4}\Big[\{8+3\, l(1-p^2)\}\frac{\pi}{\sqrt{1-p^2}} - 3\Big\{(8-p^2) +$
$+\frac{3}{2} l(1-p^2)\Big\}F'(p) + \Big\{8 + \frac{3}{2} l(1-p^2)\Big\}E'(p)\Big]$.

3) $\int l(1-p^2 \, Sin^2 x) \frac{Sin\, x \,.\, Cos^5 x}{\sqrt{1-p^2 \, Sin^2 x}^5} x\, dx = \frac{1}{9p^4}\Big[-4\{2+3\, l(1-p^2)\}\pi\sqrt{1-p^2} +$
$+8\{(20-18p^2+p^4) + 8(1-p^2)\, l(1-p^2)\}F'(p) - \Big\{4(11-2p^2) -$
$-\frac{3}{2}(2+p^2)\, l(1-p^2)\Big\}E'(p)\Big]$.

4) $$\int l(1-p^2 \,Sin^2 x) \frac{Sin\, x \,.\, Cos^7 x}{\sqrt{1-p^2 \,Sin^2 x}^5} \, x\, dx = \frac{1}{27p^8} \Big[72\, l(1-p^2) .\, \pi \sqrt{1-p^2}^3 -$$
$$- \Big\{(320-590p^2+273p^4-9p^6)+\frac{3}{2}(28-27p^2)(1-p^2)\, l(1-p^2)\Big\} F'(p) +$$
$$+ \Big\{2(160-179p^2+12p^4)-\frac{3}{2}(20-19p^2-3p^4)\, l(1-p^2)\Big\} E'(p)\Big].$$

5) $$\int l(1-p^2 \,Sin^2 x) \frac{Sin^3 x \,.\, Cos\, x}{\sqrt{1-p^2 \,Sin^2 x}^5} \, x\, dx = \frac{1}{9p^4(1-p^2)} \Big[-\Big\{(8-9p^2)+\frac{3}{2}(2-3p^2)\, l(1-p^2)\Big\}$$
$$\frac{\pi}{\sqrt{1-p^2}} + 3\Big\{(8-7p^2)+\frac{3}{2}(1-p^2)\, l(1-p^2)\Big\} F'(p) - \Big\{8+\frac{3}{2}\, l(1-p^2)\Big\} E'(p)\Big].$$

6) $$\int l(1-p^2 \,Sin^2 x) \frac{Sin^3 x \,.\, Cos^3 x}{\sqrt{1-p^2 \,Sin^2 x}^5} \, x\, dx = \frac{1}{9p^6} \Big[\Big\{8+3(4-3p^2)\, l(1-p^2)\Big\} \frac{\pi}{\sqrt{1-p^2}} -$$
$$-3(2-p^2)\Big\{10+\frac{3}{2}\, l(1-p^2)\Big\} F'(p) + \{44-3\, l(1-p^2)\} E'(p)\Big].$$

7) $$\int l(1-p^2 \,Sin^2 x) \frac{Sin^3 x \,.\, Cos^5 x}{\sqrt{1-p^2 \,Sin^2 x}^5} \, x\, dx = \frac{1}{27p^8} \Big[-12\{2p^4+3(2-p^2)\, l(1-p^2)\}\pi \sqrt{1-p^2} +$$
$$+ \Big\{(320-410p^2+111p^4)+\frac{3}{2}(28-9p^2)(1-p^2)\, l(1-p^2)\Big\} F'(p) -$$
$$- \Big\{2(160-113p^2)-\frac{3}{2}(20-13p^2)\, l(1-p^2)\Big\} E'(p)\Big].$$

8) $$\int l(1-p^2 \,Sin^2 x) \frac{Sin^5 x \,.\, Cos\, x}{\sqrt{1-p^2 \,Sin^2 x}^5} \, x\, dx = \frac{1}{9p^6(1-p^2)} \Big[-\Big\{(8-9p^2)+\frac{3}{2}(8-12p^2+3p^4)$$
$$l(1-p^2)\Big\} \frac{\pi}{\sqrt{1-p^2}} + 3\,\{(20-22p^2+3p^4)+3(1-p^2)\, l(1-p^2)\} F'(p) +$$
$$+ \Big\{-4(11-9p^2)+\frac{3}{2}(2-3p^2)\, l(1-p^2)\Big\} E'(p)\Big].$$

9) $$\int l(1-p^2 \,Sin^2 x) \frac{Sin^5 x \,.\, Cos^3 x}{\sqrt{1-p^2 \,Sin^2 x}^5} \, x\, dx = \frac{1}{27p^8} \Big[3\{8p^2(2-p^2)+3(8-8p^2+p^4)\, l(1-p^2)\}$$
$$\frac{\pi}{\sqrt{1-p^2}} - \Big\{(320-230p^2+21p^4)+\frac{3}{2}(28-19p^2)\, l(1-p^2)\Big\} F'(p) +$$
$$+ \Big\{2(160-47p^2)-\frac{3}{2}(20-7p^2)\, l(1-p^2)\Big\} E'(p)\Big].$$

$$10) \int l(1-p^2 Sin^2 x) \frac{Sin^7 x . Cos x}{\sqrt{1-p^2 Sin^2 x}^5} x \, dx = \frac{1}{27 p^8 (1-p^2)} \Big[-3 \Big\{ p^2 (24-24p^2-p^4) + \frac{3}{2}(16-24p^4+6p^4+p^6) l(1-p^2) \Big\} \frac{\pi}{\sqrt{1-p^2}} + \Big\{ (320-370p^2+53p^4+6p^6) + \frac{3}{2}(28-p^2)(1-p^2) l(1-p^2) \Big\} F'(p) + \Big\{ -2(160-141p^2-7p^4) + \frac{3}{2}(20-21p^2-2p^4) l(1-p^2) \Big\} E'(p) \Big].$$

$$11) \int l(1-p^2 Cos^2 x) \frac{Sin x . Cos x}{\sqrt{1-p^2 Cos^2 x}^5} x \, dx = \frac{1}{9p^2(1-p^2)} \Big[-(1-p^2)\pi - 3(2-p^2) F'(p) + \Big\{ 8 + \frac{3}{2} l(1-p^2) \Big\} E'(p) \Big].$$

$$12) \int l(1-p^2 Cos^2 x) \frac{Sin x . Cos^3 x}{\sqrt{1-p^2 Cos^2 x}^5} x \, dx = \frac{1}{9p^4(1-p^2)} \Big[8(1-p^2)\pi - 3 \Big\{ (8-7p^2) + \frac{3}{2}(1-p^2) l(1-p^2) \Big\} F'(p) + \Big\{ 8 + \frac{3}{2} l(1-p^2) \Big\} E'(p) \Big].$$

$$13) \int l(1-p^2 Cos^2 x) \frac{Sin x . Cos^5 x}{\sqrt{1-p^2 Cos^2 x}^5} x \, dx = \frac{1}{9p^6(1-p^2)} \Big[8(1-p^2)\pi - 3 \{ (20-22p^2+3p^4) + 3(1-p^2) l(1-p^2) \} F'(p) + \Big\{ 4(11-9p^2) - \frac{3}{2}(2-3p^2) l(1-p^2) \Big\} E'(p) \Big].$$

$$14) \int l(1-p^2 Cos^2 x) \frac{Sin x . Cos^7 x}{\sqrt{1-p^2 Cos^2 x}^5} x \, dx = \frac{1}{27p^8(1-p^2)} \Big[-\Big\{ (320-370p^2+53p^4+6p^6) + \frac{3}{2}(28-p^2)(1-p^2) l(1-p^2) \Big\} F'(p) + \Big\{ 2(160-141p^2-7p^4) - \frac{3}{2}(20-21p^2-2p^4) l(1-p^2) \Big\} E'(p) \Big].$$

$$15) \int l(1-p^2 Cos^2 x) \frac{Sin^3 x . Cos x}{\sqrt{1-p^2 Cos^2 x}^3} x \, dx = \frac{1}{9p^4} \Big[-(8+p^2)\pi + 3 \Big\{ (8-p^2) + \frac{3}{2} l(1-p^2) \Big\} F'(p) - \Big\{ 8 + \frac{3}{2} l(1-p^2) \Big\} E'(p) \Big].$$

$$16) \int l(1-p^2 Cos^2 x) \frac{Sin^3 x . Cos^3 x}{\sqrt{1-p^2 Cos^2 x}^5} x \, dx = \frac{1}{9p^6} \Big[-8(1-p^2)\pi + 3(2-p^2) \Big\{ 10 + \frac{3}{2} l(1-p^2) \Big\} F'(p) + \Big\{ -44 + 3 l(1-p^2) \Big\} E'(p) \Big].$$

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F. Alg. rat. ent.;
Logar. $l(1-p^2 Sin^2 x), l(1-p^2 Cos^2 x)$; TABLE 427, suite. Lim. 0 et $\frac{\pi}{2}$.
Circ. Dir. en dén. $\sqrt{1-p^2 Sin^2 x}^5$; $[p^2<1]$.

17) $$\int l(1-p^2 Cos^2 x) \frac{Sin^3 x . Cos^5 x}{\sqrt{1-p^2 Cos^2 x}^5} x dx = \frac{1}{27 p^8} \Big[24 p^2 \pi + \Big\{(320-230 p^2+21 p^4) + \frac{3}{2}(28-19 p^2) l(1-p^2)\Big\} F'(p) + \Big\{-2(160-47 p^2) + \frac{3}{2}(20-7 p^2) l(1-p^2)\Big\} E'(p)\Big].$$

18) $$\int l(1-p^2 Cos^2 x) \frac{Sin^5 x . Cos x}{\sqrt{1-p^2 Cos^2 x}^5} x dx = \frac{1}{9 p^6} \Big[(8-16 p^2-p^4)\pi - 3\Big\{(20-18 p^2+p^4) + 3(1-p^2) l(1-p^2)\Big\} F'(p) + \Big\{4(11-2 p^2) - \frac{3}{2}(2+p^2) l(1-p^2)\Big\} E'(p)\Big].$$

19) $$\int l(1-p^2 Cos^2 x) \frac{Sin^5 x . Cos^3 x}{\sqrt{1-p^2 Cos^2 x}^5} x dx = \frac{1}{27 p^8} \Big[-24 p^2 (4-3 p^2)\pi - \Big\{(320-410 p^2 + 111 p^4) + \frac{3}{2}(28-9 p^2)(1-p^2) l(1-p^2)\Big\} F'(p) + \Big\{2(160-113 p^2) - \frac{3}{2}(20-13 p^2) l(1-p^2)\Big\} E'(p)\Big].$$

20) $$\int l(1-p^2 Cos^2 x) \frac{Sin^7 x . Cos x}{\sqrt{1-p^2 Cos^2 x}^5} x dx = \frac{1}{27 p^8} \Big[3 p^2(40-40 p^2-p^4)\pi + \Big\{(320-590 p^2 + 273 p^4 - 9 p^6) + \frac{3}{2}(28-27 p^2)(1-p^2) l(1-p^2)\Big\} F'(p) + \Big\{-2(160-179 p^2+12 p^4) + \frac{3}{2}(20-19 p^2-3 p^4) l(1-p^2)\Big\} E'(p)\Big].$$

Sur 1) à 20) voyez M, D. 16, 28.

F. Alg. rat. ent.;
Logar. $l(1-p^2 Sin^2 x)$; TABLE 428. Lim. 0 et $\frac{\pi}{2}$.
Circ. Dir. en dén. $\sqrt{1-p^2 Sin^2 x}^7$; $[p^2<1]$.

1) $$\int l(1-p^2 Sin^2 x) \frac{Sin x \, Cos x}{\sqrt{1-p^2 Sin^2 x}^7} x dx = \frac{1}{225 p^2 (1-p^2)^2} \Big[\Big\{1+\frac{5}{2} l(1-p^2)\Big\} \frac{9\pi}{\sqrt{1-p^2}} + \Big\{2(53-53 p^2+15 p^4) + \frac{15}{2}(1-p^2) l(1-p^2)\Big\} F'(p) - (2-p^2)\Big\{62+15 l(1-p^2)\Big\} E'(p)\Big].$$

2) $$\int l(1-p^2 Sin^2 x) \frac{Sin x . Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^7} x dx = \frac{1}{225 p^4 (1-p^2)} \Big[\Big\{16+15 l(1-p^2)\Big\} \frac{\pi}{\sqrt{1-p^2}} + \Big\{(44+31 p^2-30 p^4) - \frac{15}{2}(1-p^2) l(1-p^2)\Big\} F'(p) - \Big\{2(38+31 p^2) + \frac{15}{2}(1+2 p^2) l(1-p^2)\Big\} E'(p)\Big].$$

$$3)\int l(1-p^2\,Sin^2 x)\,\frac{Sin\,x\,.\,Cos^5\,x}{\sqrt{1-p^2\,Sin^2 x}^{\,7}}\,x\,dx=\frac{1}{225\,p^6}\Big[4\Big\{46+15\,l(1-p^2)\Big\}\frac{\pi}{\sqrt{1-p^2}}-$$
$$-\Big\{2(322-22p^2-15p^4)+\frac{15}{2}(14+p^2)\,l(1-p^2)\Big\}F'(p)+$$
$$+\Big\{2(138+31p^2)+15(3+p^2)\,l(1-p^2)\Big\}E'(p)\Big].$$

$$4)\int l(1-p^2\,Sin^2 x)\,\frac{Sin\,x\,.\,Cos^7\,x}{\sqrt{1-p^2\,Sin^2 x}^{\,7}}\,x\,dx=\frac{1}{225\,p^8}\Big[-24\Big\{16+15\,l(1-p^2)\Big\}\pi\sqrt{1-p^2}+$$
$$+\Big\{(2144-2038p^2+89p^4+30p^6)+\frac{15}{2}(44+p^2)(1-p^2)\,l(1-p^2)\Big\}F'(p)+$$
$$+\Big\{-2(688-207p^2+31p^4)+\frac{15}{2}(4+9p^2+2p^4)\,l(1-p^2)\Big\}E'(p)\Big].$$

$$5)\int l(1-p^2\,Sin^2 x)\,\frac{Sin\,x\,.\,Cos^9\,x}{\sqrt{1-p^2\,Sin^2 x}^{\,7}}\,x\,dx=\frac{1}{675\,p^{10}}\Big[576\Big\{2+5\,l(1-p^2)\Big\}\pi\sqrt{1-p^2}^{\,3}-$$
$$-\Big\{2(7216-13648p^2+6603p^4-201p^6-45p^8)+\frac{15}{2}(272-264p^2-3p^4)$$
$$(1-p^2)\,l(1-p^2)\Big\}F'(p)+\Big\{2(6064-7160p^2+828p^4-93p^6)+$$
$$+30(56-18p^2-18p^4-3p^6)\,l(1-p^2)\Big\}E'(p)\Big].$$

$$6)\int l(1-p^2\,Sin^2 x)\,\frac{Sin^3 x\,.\,Cos\,x}{\sqrt{1-p^2\,Sin^2 x}^{\,7}}\,x\,dx=\frac{1}{225\,p^4(1-p^2)^2}\Big[-\Big\{(16-25p^2)+\frac{15}{2}(2-5p^2)$$
$$l(1-p^2)\Big\}\frac{\pi}{\sqrt{1-p^2}}+\Big\{-(44-119p^2+45p^4)+\frac{15}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)+$$
$$+\Big\{2(38-69p^2)+\frac{15}{2}(1-3p^2)\,l(1-p^2)\Big\}E'(p)\Big].$$

$$7)\int l(1-p^2\,Sin^2 x)\,\frac{Sin^3 x\,.\,Cos^3 x}{\sqrt{1-p^2\,Sin^2 x}^{\,7}}\,x\,dx=\frac{1}{225\,p^6(1-p^2)}\Big[-\Big\{8(23-25p^2)+15(4-5p^2)$$
$$l(1-p^2)\Big\}\frac{\pi}{\sqrt{1-p^2}}+\Big\{(614-641p^2+45p^4)+105(1-p^2)\,l(1-p^2)\Big\}F'(p)-$$
$$-3(2-p^2)\Big\{46+\frac{15}{2}\,l(1-p^2)\Big\}E'(p)\Big].$$

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8) $$\int l(1-p^2 Sin^2 x) \frac{Sin^3 x . Cos^5 x}{\sqrt{1-p^2 Sin^2 x}^7} x dx = \frac{1}{225 p^8} \Big[4\{2(48-25p^2)+15(6-5p^2)l(1-p^2)\} \frac{\pi}{\sqrt{1-p^2}} - \Big\{(2144-1394p^2+45p^4)+\frac{15}{2}(44-29p^2)l(1-p^2)\Big\} F'(p) + \Big\{2(688-69p^2)-\frac{15}{2}(4+3p^2)l(1-p^2)\Big\} E'(p) \Big].$$

9) $$\int l(1-p^2 Sin^2 x) \frac{Sin^3 x . Cos^7 x}{\sqrt{1-p^2 Sin^2 x}^7} x dx = \frac{1}{675 p^{10}} \Big[-72\{16+5(8-5p^2)l(1-p^2)\} \pi\sqrt{1-p^2} + \{(14432-20864p^2+7092p^4-135p^6)+30(68-33p^2)(1-p^2) l(1-p^2)\} F'(p) - \Big\{2(6064-5096p^2+207p^4)+\frac{15}{2}(112-44p^2+9p^4)l(1-p^2)\Big\} E'(p) \Big].$$

10) $$\int l(1-p^2 Sin^2 x) \frac{Sin^5 x . Cos x}{\sqrt{1-p^2 Sin^2 x}^7} x dx = \frac{1}{225 p^6 (1-p^2)^2} \Big[\Big\{(184-400p^2+225p^4)+\frac{15}{2}(8-20p^2+15p^4)l(1-p^2)\Big\} \frac{\pi}{\sqrt{1-p^2}} - \Big\{2(322-622p^2+285p^4)+\frac{15}{2}(14-15p^2)(1-p^2)l(1-p^2)\Big\} F'(p) + \{2(138-169p^2)+15(3-4p^2)l(1-p^2)\} E'(p) \Big].$$

11) $$\int l(1-p^2 Sin^2 x) \frac{Sin^5 x . Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^7} x dx = \frac{1}{225 p^8 (1-p^2)} \Big[-\{16(24-25p^2)+15(24-40p^2+15p^4)l(1-p^2)\} \frac{\pi}{\sqrt{1-p^2}} + \Big\{(2144-2894p^2+795p^4)+\frac{15}{2}(44-15p^2)(1-p^2)l(1-p^2)\Big\} F'(p) - \Big\{2(688-619p^2)-\frac{15}{2}(4-7p^2)l(1-p^2)\Big\} E'(p) \Big].$$

12) $$\int l(1-p^2 Sin^2 x) \frac{Sin^5 x . Cos^5 x}{\sqrt{1-p^2 Sin^2 x}^7} x dx = \frac{1}{675 p^{10}} \Big[12\{2(48-25p^2)+15(16-20p^2+5p^4) l(1-p^2)\} \frac{\pi}{\sqrt{1-p^2}} - \Big\{2(7216-7216p^2+1455p^4)+\frac{15}{2}(272-272p^2+45p^4) l(1-p^2)\Big\} F'(p) + 4(2-p^2)\{1516-105 l(1-p^2)\} E'(p) \Big].$$

13) $$\int l(1-p^2 Sin^2 x) \frac{Sin^7 x . Cos x}{\sqrt{1-p^2 Sin^2 x}^7} x dx = \frac{1}{225 p^8 (1-p^2)^2} \Big[3\Big\{(128-200p^2+75p^6)+\frac{15}{2}(16-40p^2-30p^4-5p^6)l(1-p^2)\Big\} \frac{\pi}{\sqrt{1-p^2}} - \Big\{(2144-4394p^2+2445p^4-225p^6)+\frac{15}{2}(44-45p^2)(1-p^2)l(1-p^2)\Big\} F'(p) + \Big\{2(688-1169p^2+450p^4)-\frac{15}{2}(4-17p^2+15p^4)l(1-p^2)\Big\} E'(p) \Big].$$

F. Alg. rat. ent.; Logar. $l(1-p^2 \, Sin^2 x)$; Circ. Dir. en dén. $\sqrt{1-p^2 \, Sin^2 x}^7$; $[p^2<1]$

TABLE 428, suite.

Lim. 0 et $\frac{\pi}{2}$.

14) $$\int l(1-p^2 \, Sin^2 x) \frac{Sin^7 x \, . \, Cos^3 x}{\sqrt{1-p^2 \, Sin^2 x}^7} \, x \, dx = \frac{1}{675 \, p^{10}(1-p^2)} \Big[-3 \{ 8(48-75p^4+25p^6) + 15(64-120p^2+60p^4-5p^6) \, l(1-p^2) \} \frac{\pi}{\sqrt{1-p^2}} + \{ (14432-22432p^2+8660p^4-525p^6) + 30(68-35p^2)(1-p^2) \, l(1-p^2) \} F'(p) - \Big\{ 2(6064-7032p^2+1175p^4) + \frac{15}{2}(112-156p^2+35p^4) \, l(1-p^2) \Big\} E'(p) \Big].$$

15) $$\int l(1-p^2 \, Sin^2 x) \frac{Sin^9 x \, . \, Cos x}{\sqrt{1-p^2 \, Sin^2 x}^7} \, x \, dx = \frac{1}{675 \, p^{10}(1-p^2)^2} \Big[3 \Big\{ (384-1200p^4+800p^6+25p^8) + \frac{15}{2}(128-320p^2+240p^4-40p^6-5p^8) \, l(1-p^2) \Big\} \frac{\pi}{\sqrt{1-p^2}} - \Big\{ 2(7216-15216p^2+8955p^4-925p^6-75p^8) + \frac{15}{2}(272-280p^2+5p^4)(1-p^2) \, l(1-p^2) \Big\} F'(p) + \{ 2(6064-11032p^2-4700p^4+175p^6) - 15(56-128p^2+70p^4+5p^6) \, l(1-p^2) \} E'(p) \Big].$$

Sur 1) à 15) voyez M, D. 16, 28.

F. Alg. rat. ent.; Logar. $l(1-p^2 \, Cos^2 x)$; Circ. Dir. en dén. $\sqrt{1-p^2 \, Cos^2 x}^7$; $[p^2<1]$.

TABLE 429.

Lim. 0 et $\frac{\pi}{2}$.

1) $$\int l(1-p^2 \, Cos^2 x) \frac{Sin x \, . \, Cos x}{\sqrt{1-p^2 \, Cos^2 x}^7} \, x \, dx = \frac{1}{225 \, p^2 (1-p^2)^2} \Big[-9(1-p^2)^2 \pi - \Big\{ 2(53-53p^2+15p^4) + \frac{15}{2}(1-p^2) \, l(1-p^2) \Big\} F'(p) + (2-p^2) \{ 62+15 \, l(1-p^2) \} E(p) \Big].$$

2) $$\int l(1-p^2 \, Cos^2 x) \frac{Sin x \, . \, Cos^3 x}{\sqrt{1-p^2 \, Cos^2 x}^7} \, x \, dx = \frac{1}{225 \, p^4 (1-p^2)^2} \Big[16(1-p^2)^2 \pi + \Big\{ (44-119p^2+45p^4) - \frac{15}{2}(1-p^2) \, l(1-p^2) \Big\} F'(p) - \Big\{ 2(38-69p^2) + \frac{15}{2}(1-3p^2) \, l(1-p^2) \Big\} E'(p) \Big].$$

3) $$\int l(1-p^2 \, Cos^2 x) \frac{Sin\, x \,.\, Cos^5 x}{\sqrt{1-p^2 \, Cos^2 x}^7} x\, dx = \frac{1}{225 p^6 (1-p^2)^2} \Big[-184 (1-p^2)^2 \pi + $$
$$+ \Big\{ 2(322 - 622 p^2 + 285 p^4) + \frac{15}{2}(14 - 15 p^2)(1-p^2) \, l(1-p^2) \Big\} F'(p) -$$
$$- \{ 2(138 - 169 p^2) + 15 (3 - 4 p^2) \, l(1-p^2) \} E'(p) \Big].$$

4) $$\int l(1-p^2 \, Cos^2 x) \frac{Sin\, x \,.\, Cos^7 x}{\sqrt{1-p^2 \, Cos^2 x}^7} x\, dx = \frac{1}{225 p^8 (1-p^2)^2} \Big[16 (1-p^2)^2 \pi +$$
$$+ \Big\{ (2144 - 4394 p^2 + 2445 p^4 - 225 p^6) + \frac{15}{2}(44 - 45 p^2)(1-p^2) \, l(1-p^2) \Big\} F'(p) +$$
$$+ \Big\{ -2 (688 - 1169 p^2 + 450 p^4) + \frac{15}{2} (4 - 17 p^2 + 15 p^4) \, l(1-p^2) \Big\} E'(p) \Big].$$

5) $$\int l(1-p^2 \, Cos^2 x) \frac{Sin\, x \,.\, Cos^9 x}{\sqrt{1-p^2 \, Cos^2 x}^7} x\, dx = \frac{1}{675 p^{10} (1-p^2)^2} \Big[16 (1-p^2)^2 \pi +$$
$$+ \Big\{ 2(7216 - 15216 p^2 + 8955 p^4 - 925 p^6 - 75 p^8) + \frac{15}{2}(272 - 280 p^2 + 5 p^4)$$
$$(1-p^2) \, l(1-p^2) \Big\} F'(p) + \{ -2 (6064 - 11032 p^2 + 4700 p^4 + 175 p^6) +$$
$$+ 15 (56 - 128 p^2 + 70 p^4 + 5 p^6) \, l(1-p^2) \} E(p) \Big].$$

6) $$\int l(1-p^2 \, Cos^2 x) \frac{Sin^3 x \,.\, Cos\, x}{\sqrt{1-p^2 \, Cos^2 x}^7} x\, dx = \frac{1}{225 p^4 (1-p^2)} \Big[-(16 + 9 p^2)(1-p^2) \pi +$$
$$+ \Big\{ -(44 + 31 p^2 - 30 p^4) + \frac{15}{2} (1-p^2) \, l(1-p^2) \Big\} F'(p) + \Big\{ 2 (38 + 31 p^2) +$$
$$+ \frac{15}{2} (1 + 2 p^2) \, l(1-p^2) \Big\} E'(p) \Big].$$

7) $$\int l(1-p^2 \, Cos^2 x) \frac{Sin^3 x \,.\, Cos^3 x}{\sqrt{1-p^2 \, Cos^2 x}^7} x\, dx = \frac{1}{225 p^6 (1-p^2)} \Big[8 (23 + 2 p^2)(1-p^2) \pi -$$
$$- \{ (644 - 644 p^2 + 45 p^4) + 105 (1-p^2) \, l(1-p^2) \} F'(p) +$$
$$+ 3 (2 - p^2) \Big\{ 46 + \frac{15}{2} \, l(1-p^2) \Big\} E'(p) \Big].$$

8) $$\int l(1-p^2 \, Cos^2 x) \frac{Sin^3 x \,.\, Cos^5 x}{\sqrt{1-p^2 \, Cos^2 x}^7} x\, dx = \frac{1}{225 p^8 (1-p^2)} \Big[-8 (23 + 2 p^2)(1-p^2) \pi -$$
$$- \Big\{ (2144 - 2894 p^2 + 795 p^4) + \frac{15}{2} (44 - 15 p^2)(1-p^2) \, l(1-p^2) \Big\} F'(p) +$$
$$+ \Big\{ 2 (688 - 619 p^2) - \frac{15}{2} (4 - 7 p^2) \, l(1-p^2) \Big\} E'(p) \Big].$$

9) $\int l(1-p^2\,Cos^2 x)\,\frac{Sin^3 x\,.\,Cos^7 x}{\sqrt{1-p^2\,Cos^2 x}^{\,7}}\,x\,dx=\frac{1}{675\,p^{10}\,(1-p^2)}\Big[-16\,(1-3p^2)(1-p^2)\pi-$
$-\{(14432-22432p^2+8660p^4-525p^6)+30\,(68-35p^2)(1-p^2)\,l(1-p^2)\}\,F'(p)+$
$+\Big\{2\,(6064-7032p^2+1175p^4)-\frac{15}{2}(112-156p^2+35p^4)\,l(1-p^2)\Big\}\,E'(p)\Big].$

10) $\int l(1-p^2\,Cos^2 x)\,\frac{Sin^5 x\,.\,Cos\,x}{\sqrt{1-p^2\,Cos^2 x}^{\,7}}\,x\,dx=\frac{1}{225\,p^6}\Big[-(184+32\,p^2+9\,p^4)\pi+$
$+\Big\{2\,(322-22p^2-15p^4)+\frac{15}{2}(14+p^2)\,l(1-p^2)\Big\}\,F'(p)-\{2\,(138+31p^2)+$
$+15\,(3+p^2)\,l(1-p^2)\}\,E'(p)\Big].$

11) $\int l(1-p^2\,Cos^2 x)\,\frac{Sin^5 x\,.\,Cos^3 x}{\sqrt{1-p^2\,Cos^2 x}^{\,7}}\,x\,dx=\frac{1}{225\,p^8}\Big[8\,(1+p^2)(23-12p^2)\pi+$
$+\Big\{(2144-1394p^2+45p^4)+\frac{15}{2}(44-29p^2)\,l(1-p^2)\Big\}\,F'(p)+$
$+\Big\{-2\,(683-69p^2)+\frac{15}{2}(4+3p^2)\,l(1-p^2)\Big\}\,E'(p)\Big].$

12) $\int l(1-p^2\,Cos^2 x)\,\frac{Sin^5 x\,.\,Cos^5 x}{\sqrt{1-p^2\,Cos^2 x}^{\,7}}\,x\,dx=\frac{1}{675\,p^{10}}\Big[8\,(2-75p^2+6p^4)\pi+$
$+\Big\{2\,(7216-7216p^2+1455p^4)+\frac{15}{2}(272-272p^2+45p^4)\,l(1-p^2)\Big\}\,F'(p)-$
$-4\,(2-p^2)\,\{1516+105\,l(1-p^2)\}\,E'(p)\Big].$

13) $\int l(1-p^2\,Cos^2 x)\,\frac{Sin^7 x\,.\,Cos\,x}{\sqrt{1-p^2\,Cos^2 x}^{\,7}}\,x\,dx=\frac{1}{225\,p^8}\Big[-(184+272p^2-64p^4+9p^6)\pi-$
$-\Big\{(2144-2038p^2+89p^4+30p^6)+\frac{15}{2}(44+p^2)(1-p^2)\,l(1-p^2)\Big\}\,F'(p)+$
$+\Big\{2\,(688-207p^2+31p^4)-\frac{15}{2}(4+9p^2+2p^4)\,l(1-p^2)\Big\}\,E'(p)\Big].$

14) $\int l(1-p^2\,Cos^2 x)\,\frac{Sin^7 x\,.\,Cos^3 x}{\sqrt{1-p^2\,Cos^2 x}^{\,7}}\,x\,dx=\frac{1}{675\,p^{10}}\Big[-8\,(69+31p^2+39p^4-6p^6)\pi-$
$-\{14432-20564p^2+7092p^4-135p^6)+30\,(68-33p^2)(1-p^2)\,l(1-p^2)\}\,F'(p)+$
$+\{2\,(6064-5096p^2+207p^4)+\frac{15}{2}(112-44p^2+9p^4)\,l(1-p^2)\}\,E'(p)\Big].$

15) $\int l(1-p^2 Cos^2 x) \frac{Sin^2 x . Cos x}{\sqrt{1-p^2 Cos^2 x}^7} x dx = \frac{1}{675 p^{10}} \Big[(552-304p^2-584p^4+144p^6-27p^8)\pi +$

$+ \Big\{ 2(7216-13648p^2+6603p^4-201p^6-45p^8) + \frac{15}{2}(272-264p^2-3p^4)(1-p^2)$

$l(1-p^2) \Big\} F'(p) - \{ 2(6064-7160p^2+828p^4-93p^6) + 30(56-18p^2-18p^4-3p^6)$

$l(1-p^2) \} E'(p) \Big]$.

Sur 1) à 15) voyez M, D. 16, 28.

F. Alg. rat. ent.;
Logar. d'autre forme;
Circul. Directe.

TABLE 430.

Lim. 0 et $\frac{\pi}{2}$.

1) $\int l Sin x . x^{p-1} dx = -\frac{1}{p}\left(\frac{\pi}{2}\right)^p \left\{1 - \sum_1^\infty \frac{2}{p+2m} \sum_1^\infty \frac{1}{(4n^2)^m}\right\}$ V. T. 205, N. 7.

2) $\int l(1-Cos x) . x^{p-1} dx = \frac{1}{2p}\left(\frac{\pi}{2}\right)^p \left\{l2 + 2 - \sum_1^\infty \frac{4}{p+2m} \sum_1^\infty \frac{1}{(4n)^{2m}}\right\}$ V. T. 204, N. 6.

3) $\int l Sin x \frac{x dx}{Tg x} = -\frac{\pi}{4}\left\{(l2)^2 + \frac{1}{12}\pi^2\right\}$ V. T. 305, N. 19.

4) $\int l Tg x \frac{Sin^2 x . Tg x}{p^4 Cos^4 x - q^4 Sin^4 x} x dx = \frac{\pi}{32 p^4 q^4} l \frac{q^4}{(p+q)^2 (p^2+q^2)}$ V. T. 208, N. 18.

5) $\int \left\{\frac{p\, l(1+p Sin^2 x)}{1-p^2 Sin^2 x} + \frac{2}{1+p Sin^2 x}\right\} \frac{Sin 2x}{\sqrt{1-p^2 Sin^2 x}} x dx = \frac{1}{p} l \left(\frac{\sqrt{p}}{2(1+p)}\right) . F'(p) +$

$+ \frac{\pi}{4p} F'\{\sqrt{1-p^2}\} + \frac{\pi}{p\sqrt{1-p^2}} l(1+p)$ V. T. 325, N. 4.

6) $\int \left\{\frac{p\, l(1-p Sin^2 x)}{1-p^2 Sin^2 x} - \frac{2}{1-p Sin^2 x}\right\} \frac{Sin 2x}{\sqrt{1-p^2 Sin^2 x}} x dx = \frac{1}{p} l \left(\frac{\sqrt{p}}{2(1-p)}\right) . F'(p) +$

$+ \frac{\pi}{4p} F'\{\sqrt{1-p^2}\} + \frac{\pi}{p\sqrt{1-p^2}} l(1-p)$ V. T. 325, N. 5.

7) $\int \left\{\frac{l(1-p^2 Sin^2 \lambda . Sin^2 x)}{1-p^2 Sin^2 x} - \frac{2 Sin^2 \lambda}{1-p^2 Sin^2 \lambda . Sin^2 x}\right\} \frac{Sin 2x}{\sqrt{1-p^2 Sin^2 x}} x dx = \frac{1}{p^2}\Big\{4 F'(p) T(p,\lambda) -$

$- 2 E'(p) . \{F(p,\lambda)\}^2 + \frac{\pi}{\sqrt{1-p^2}} l(1-p^2 Sin^2 \lambda)\Big\}$ V. T. 325, N. 9.

8) $\int\left\{\frac{l(1-p^2 \operatorname{Sin}^4 x)}{1-p^2 \operatorname{Sin}^2 x}-\frac{4 \operatorname{Sin}^2 x}{1-p^2 \operatorname{Sin}^4 x}\right\} \frac{\operatorname{Sin} 2 x}{\sqrt{1-p^2 \operatorname{Sin}^2 x}} x\, d x=\frac{1}{p^2} l\left(\frac{p}{4(1-p^2)}\right) . \mathrm{F}'(p)+$

$+\frac{\pi}{2 p^2} \mathrm{F}'\left\{\sqrt{1-p^2}\right\}+\frac{\pi}{p^2 \sqrt{1-p^2}} l(1-p^2)$ V. T. 325, N. 10.

9) $\int\left\{l\left(\frac{1-q \sqrt{1-p^2 \operatorname{Sin}^2 x}}{1+q \sqrt{1-p^2 \operatorname{Sin}^2 x}}\right)+\frac{2 q(1-p^2 \operatorname{Sin}^2 x)}{1-q^2+p^2 q^2 \operatorname{Sin}^2 x}\right\} \frac{\operatorname{Sin} 2 x}{\sqrt{1-p^2 \operatorname{Sin}^2 x}^3} x\, d x=$

$=\frac{2 \pi}{p^2} \mathrm{F}\left\{\sqrt{1-p^2}, \operatorname{Arcsin} q\right\}+\frac{\pi}{p^2 \sqrt{1-p^2}} l \frac{1-q \sqrt{1-p^2}}{1+q \sqrt{1-p^2}}$ V. T. 325, N. 11.

10) $\int\left\{1+p^2 \operatorname{Sin}^2 x .(l \operatorname{Sin} x-1)\right\} \frac{\operatorname{Cot} x}{\sqrt{1-p^2 \operatorname{Sin}^2 x}^3} x\, d x=\frac{1}{2} \mathrm{F}'(p) . l p+\frac{\pi}{4} \mathrm{F}'\left\{\sqrt{1-p^2}\right\}$

V. T. 322, N. 3.

11) $\int \frac{\operatorname{Cos}^2 x+2 \operatorname{Sin}^2 x . l \operatorname{Sin} x}{(l \operatorname{Cosec} x)^{\frac{3}{2}}} \frac{x\, d x}{\operatorname{Sin} x}=2 \sqrt{\pi}-\pi \sqrt{2}$ V. T. 329, N. 3.

12) $\int \frac{\operatorname{Sin} x}{l \operatorname{Cos} x} x\, d x=-\sum_0^{\infty} \frac{1^{n/1}}{2^{n/2}} \frac{l(2 n+2)}{2 n+1}$ (VIII, 543).

13) $\int \frac{\operatorname{Sin} x}{l \operatorname{Cos} x} x^2\, d x=-\sum_1^{\infty} \frac{2^{n/2}}{3^{n/2}} \frac{l(2 n+1)}{n}$ (VIII, 543).

F. Alg. rat.; Logarithm. de Circul. Directe. Dén. $x^2+(l \operatorname{Cos} x)^2$. TABLE 431. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{\operatorname{Tg} x}{x^2+(l \operatorname{Cos} x)^2} x\, d x=\frac{\pi}{2\, l 2}$ V. T. 431, N. 5.

2) $\int \frac{l \operatorname{Cos} x}{x^2+(l \operatorname{Cos} x)^2} d x=\frac{\pi}{2}\left(1-\frac{1}{l 2}\right)$ V. T. 431, N. 4.

3) $\int \frac{\operatorname{Cos} 2 a x . l \operatorname{Cos} x+x \operatorname{Sin} 2 a x}{x^2+(l \operatorname{Cos} x)^2} d x=\frac{1}{2} \pi$ (IV, 531).

4) $\int \frac{\operatorname{Cos}(p \operatorname{Tg} x) . l \operatorname{Cos} x+x \operatorname{Sin}(p \operatorname{Tg} x)}{x^2+(l \operatorname{Cos} x)^2} d x=\frac{\pi}{2}\left(1-\frac{e^{-p}}{l 2}\right)$ V. T. 485, N. 2.

5) $\int \frac{\operatorname{Sin}(p \operatorname{Tg} x) . l \operatorname{Cos} x-x \operatorname{Cos}(p \operatorname{Tg} x)}{x^2+(l \operatorname{Cos} x)^2} \operatorname{Tg} x\, d x=-\frac{\pi}{2\, l 2} e^{-p}$ V. T. 485, N. 3.

6) $\int \frac{l \operatorname{Cos} x}{x^2+(l \operatorname{Cos} x)^2} \frac{d x}{1+\operatorname{Cos} 2 x}=\infty$ V. T. 431, N, 10.

7) $\int \frac{l \operatorname{Cos} x}{x^2+(l \operatorname{Cos} x)^2} \frac{d x}{1-\operatorname{Cos} 2 x}=\frac{\pi}{4}$ V. T. 431, N. 10.

8) $\int \frac{Sin\,2x}{x^2+(l\,Cos\,x)^2}\,\frac{x\,dx}{1-Cos\,2x}=\infty$ V. T. 431, N. 11.

9) $\int \frac{Sin\,2x}{x^2+(l\,Cos\,x)^2}\,\frac{x\,dx}{1+Cos\,2x}=\frac{\pi}{2\,l\,2}$ V. T. 431, N. 11.

10) $\int \frac{l\,Cos\,x}{x^2+(l\,Cos\,x)^2}\,\frac{dx}{1-2p\,Cos\,2x+p^2}=\frac{1}{2}\,\frac{\pi}{p^2-1}\left\{\frac{1}{l2-l(1+p)}-\frac{1+p}{1-p}\right\}$ $[p^2\leqq 1]$, $=$

$=\frac{1}{2}\,\frac{\pi}{p^2-1}\left\{\frac{p+1}{p-1}-\frac{1}{l(2p)-l(1+p)}\right\}$ $[p^2>1]$ (IV, 531).

11) $\int \frac{Sin\,2x}{x^2+(l\,Cos\,x)^2}\,\frac{x\,dx}{1-2p\,Cos\,2x+p^2}=\frac{\pi}{4p}\left\{\frac{1}{l2-l(1+p)}-\frac{1}{l2}\right\}$ $[p^2\leqq 1]$, $=$

$=\frac{\pi}{p}\left\{\frac{1}{l2}-\frac{1}{l(1+p)-l2p}\right\}$ $[p^2>1]$ (IV, 532).

12) $\int \frac{Sin\,2x\,.\,l\,Cos\,x}{1-2p\,Cos\,2x+p^2}\,x\,dx=\frac{\pi}{8p}\,l(1+p)$.

13) $\int \frac{Sin\,qrx\,.\,l\,Cos\,x-x\,Cos\,qrx}{x^2+(l\,Cos\,x)^2}\,\frac{Cos^{r-1}x\,.\,Sin\,x}{1-2p\,Cos\,2x+p^2}\,dx=\frac{\pi}{2p\,l\frac{1+p}{2}}\left(\frac{1+p^q}{2}\right)^r+\frac{\pi}{p2^{r+1}\,l2}$

14) $\int \frac{Sin\,2x\,.\,l\,Cos\,x}{\{x^2+(l\,Cos\,x)^2\}^2}\,\frac{x\,dx}{1-2p\,Cos\,2x+p^2}=\frac{\pi}{8p(l2)^2}-\frac{\pi}{8p\left\{l\frac{2}{1+p}\right\}^2}+\frac{\pi}{2(1-p)^2}$.

16) $\int \frac{Tg\,x\,.\,l\,Cos\,x}{\{x^2+(l\,Cos\,x)^2\}^2}\,x\,dx=\frac{\pi}{4}\left(1-\frac{1}{(l2)^2}\right)$. 15) $\int \frac{Sin\,2x\,.\,l\,Cos\,x}{\{x^2+(l\,Cos\,x)^2\}^2}\,x\,dx=\frac{\pi}{2}\left(1-\frac{1}{2(l2)^2}\right)$.

17) $\int \frac{Sin\,4x\,.\,l\,Cos\,x}{\{x^2+(l\,Cos\,x)^2\}^2}\,x\,dx=\pi\left(1-\frac{3-l2}{8(l2)^4}\right)$.

Sur 11) à 16) voyez Svanberg, N. A. Ups. 10, 231.

18) $\int \frac{(l\,Cos\,x)^2+2x\,Tg\,x\,.\,l\,Cos\,x-x^2}{\{x^2+(l\,Cos\,x)^2\}^2}\,l\,Cos\,x\,.dx=\frac{\pi}{2\,l\,2}$ V. T. 431, N. 1.

19) $\int \frac{(l\,Cos\,x)^2-2x\,Cot\,x\,.\,l\,Cos\,x-x^2}{\{x^2+(l\,Cos\,x)^2\}^2}\,x\,Tg\,x\,.dx=\pi\,\frac{1-l2}{2\,l\,2}$ V. T. 431, N. 2.

F. Algébr. rat.; Logarithmique de Circulaire Directe. | TABLE 432. | Lim. 0 et π.

1) $\int l\,Sin\,x\,.\,x\,dx=-\frac{1}{2}\pi^2\,l2$ (VIII, 257). 2) $\int l\,Cos^2 x\,.\,x\,dx=-\pi^2\,l2$ (VIII, 257).

3) $\int l\,Tg^2 x\,.\,x\,dx=0$ (VIII, 257). 4) $\int l((Sin\,x))\,.\,x\,dx=-\frac{1}{2}\pi^2\,l2+\alpha\pi^3 i$ (VIII, 258).

5) $\int l((-Sin\,x)).x\,dx = -\frac{1}{2}\pi^2 l2 + \frac{2a+1}{2}\pi^3 i$ (VIII, 258).

6) $\int l Sin\,x.(3\pi - 2x)x^2\,dx = -\pi^4 l4$ (VIII, 258).

7) $\int l(1-2p\,Cos\,2x+p^2).Sin\{(2a-1)x\}.x^{2b+1}\,dx = 0$ (IV, 532).

8) $\int l(1-2p\,Cos\,2x+p^2).Cos\{(2a-1)x\}.x^{2b}\,dx = 0$ (IV, 532).

9) $\int l(1-2p\,Cos\,2x+p^2).Sin\,2ax.Sin\,x.x^{2b}\,dx = 0$ V. T. 432, N. 8.

10) $\int l(1-2p\,Cos\,2x+p^2).Sin\,2ax.Cos\,x.x^{2b+1}\,dx = 0$ V. T. 432, N. 7.

11) $\int l(1-2p\,Cos\,2x+p^2).Cos\,2ax.Sin\,x.x^{2b+1}\,dx = 0$ V. T. 432, N. 7.

12) $\int l(1-2p\,Cos\,2x+p^2).Cos\,2ax.Cos\,x.x^{2b}\,dx = 0$ V. T. 432, N. 8.

13) $\int l(1-2r\,Cos\,x+r^2).Sin\,ax.x^{2b+1}\,dx = \frac{(-1)^{b+1}\pi r^a}{a^{2b+2}} 1^{2b+1/1} \sum_0^{2b-1} \frac{(-a\,lr)^n}{1^{n/1}}$ (IV, 533).

14) $\int l(1-2r\,Cos\,x+r^2).Cos\,ax.x^{2b}\,dx = \frac{(-1)^{b+1}\pi r^a}{a^{2b+1}} 1^{2b/1} \sum_0^{2b} \frac{(-a\,lr)^n}{1^{n/1}}$ (IV, 533).

[Dans 7) à 10) on a $0<p<1, r^2<1$].

F. Algébr.; Logarithmique; Circulaire Directe. TABLE 433. Lim. diverses.

1) $\int_0^{2a\pi} l((Sin\,x)).x\,dx = -2a^2\pi^2 l2 + a\left\{(4\alpha+1)a+\frac{1}{2}\right\}\pi^3 i$ (VIII, 282).

2) $\int_0^{(2a+1)\pi} l((Sin\,x)).x\,dx = -\frac{(2a+1)^2}{2}\pi^2 l2 + \frac{1}{4}(2a+1)\{(2a+1)(4\alpha+1)-1\}\pi^3 i$ (VIII, 282).

3) $\int_0^{2a\pi} l((Cos\,x)).x\,dx = -2a^2\pi^2 l2 - a\left(4a\alpha+\frac{1}{4}\right)\pi^3 i$ (VIII, 283).

4) $\int_0^{(2a+1)\pi} l((Cos\,x)).x\,dx = -\frac{(2a+1)^2}{2}\pi^2 l2 - \frac{2a+1}{4}\left\{(2a+1)4\alpha - \frac{3}{2}\right\}\pi^3 i$ (VIII, 283).

Page 621.

5) $\int_{\frac{\pi}{2}}^{(2a+\frac{1}{2})\pi} l((Sin\,x)).x\,dx = -(2a+1)a\pi^2 l2 - a\left\{(2a+1)2\alpha+\frac{1}{4}\right\}\pi^3 i$ (VIII, 284).

6) $\int_{\frac{\pi}{2}}^{(2a-\frac{1}{2})\pi} l((Sin\,x)).x\,dx = -(2a-1)a\pi^2 l2 - \frac{1}{4}\left\{(2a-1)8a\alpha-3a+\frac{1}{2}\right\}\pi^3 i$ (VIII, 284).

7) $\int_0^{2a\pi} l(1+2p\,Cos\,x+p^2).x^b\,dx = \sum_0^{b-1}\left\{1^{n/1}\binom{b}{n}(2a\pi)^{b-n}Cos\left(\frac{n+1}{2}\pi\right).\sum_1^\infty\frac{p^m}{m^{n+2}}\right\}$ $[p^2<1]$ (IV, 541).

8) $\int_0^\lambda\left\{2x+l\left(\frac{1+Sin\,x}{1-Sin\,x}\right)\right\}\frac{dx}{\sqrt{(Cos^2x-Cos^2\lambda)(1-Cos^2\lambda.Cos^2x)}} = \pi\,Cosec\,\phi.\mathrm{F}(p,\phi)$ (IV, 541).

9) $\int_0^\lambda\left\{2x\,Cos\,x-l\left(\frac{1+Sin\,x}{1-Sin\,x}\right)\right\}\frac{Cos\,x}{Sin^2x.\sqrt{(Cos^2x-Cos^2\lambda)(1-Cos^2\lambda.Cos^2x)}}dx =$

$= \frac{\pi\,Cos^2\lambda}{Sin\,\lambda.Sin\,\phi}\mathrm{F}(p,\phi) - \frac{\pi\,Sin\,\phi}{Sin^4\lambda}\mathrm{E}(p,\phi) + \frac{\pi\,Cos\,\lambda}{Sin^2\lambda}$ (IV, 541).

[Dans 8) et 9) on a $Cos\,\phi = Cos^2\lambda$, $p = Sin\,\lambda.Cosec\,\phi$].

F. Alg.; Logarithm.; Circul. Directe. Intégr. Lim. [Lim. $k=\infty$]. TABLE 434. Lim. diverses.

1) $\int_0^\infty l\,Sin\,kx\frac{dx}{p^2+x^2} = -\frac{\pi}{2p}l2$ (VIII, 380).

2) $\int_0^\infty l\,Cos\,kx\frac{dx}{p^2+x^2} = -\frac{\pi}{2p}l2$ (VIII, 380). 3) $\int_0^\infty l\,Tg\,kx\frac{dx}{p^2+x^2} = 0$ V. T. 434, N. 1, 2.

4) $\int_0^{\frac{\pi}{2}}\frac{Cos^kx}{x^2+(l\,Cos\,x)^2}\,\frac{x\,Sin\,kx+Cos\,kx.l\,Cos\,x}{1-2p\,Cos\,2x+p^2}dx = \frac{\pi}{2(1-p)^2}$ $[p^2<1]$ IV, 532).

5) $\int_0^{\frac{\pi}{2}}\frac{Cos^kx.Sin\,2x}{x^2+(l\,Cos\,x)^2}\,\frac{Sin\,kx.l\,Cos\,x-x\,Cos\,kx}{1-2p\,Cos\,2x+p^2}dx = 0$ $[p^2<1]$ (IV, 532).

F. Algébr. rat.; Logarithmique en num.; Circulaire Inverse. TABLE 435. Lim. 0 et 1.

1) $\int Arcsin\,x.(2a\,lx+1)x^{2a-1}\,dx = \frac{3^{a-1/1}}{2^{a/1}}\frac{\pi}{2}\left(l2+\sum_1^{2a}\frac{(-1)^n}{n}\right)$ V. T. 118, N. 5.

2) $\int Arcsin\,x.\{(2a+1)lx+1\}x^{2a}\,dx = \frac{2^{a/1}}{1^{a+1/1}}\left(l2+\sum_1^{2a+1}\frac{(-1)^n}{n}\right)$ V. T. 118, N. 6.

3) $\int Arcsin\,x \,.\, lx \frac{dx}{x} = -\frac{\pi}{4}\left\{(l2)^2 + \frac{1}{12}\pi^2\right\}$ V. T. 118, N. 13.

4) $\int Arcsin\,x \,.\, l(1+qx^2)\,.\,x\,dx = \frac{\pi}{4}\left\{\frac{q+2}{q}\, l\frac{2(1+q)}{1+\sqrt{1+q}} - \frac{\sqrt{1+q}}{1+\sqrt{1+q}}\right\}$ $[q^2 < 1]$

V. T. 120, N. 7, T. 229, N. 2 et T. 231, N. 1.

5) $\int Arcsin\,x \,.\, l(px+1)\frac{dx}{x^2} = \frac{1}{8}\pi^2 - \frac{1}{2}(Arccos\,p)^2 - \frac{\pi}{2}\, l(1+p) + \frac{1}{2}p\pi \,.\, l\frac{1+\sqrt{1+p}}{\sqrt{1+p}}$

V. T. 120, N. 2 et T. 235, N. 10.

6) $\int Arcsin\,x \,.\, l\left(\frac{1+qx}{1-qx}\right)\frac{dx}{x^2} = \frac{\pi}{2}\, l\left(\frac{1-q}{1+q}\right) + \pi q\, l\frac{1+\sqrt{1-q^2}}{\sqrt{1-q^2}} + \pi\, Arcsin\,q$

V. T. 122, N. 2 et T. 235, N. 10.

7) $\int Arcsin\,x.\left\{\frac{1+qx^2}{(1-qx^2)^2}\, l\left(\frac{1+px}{1-px}\right) + \frac{2p}{1-x^2}\,\frac{x}{1-p^2x^2}\right\}dx = \frac{\pi}{2(1-q)}\, l\frac{1+p}{1-p} +$

$+\frac{\pi}{\sqrt{q(1-q)}}\, l\frac{p\sqrt{q} - \{1-\sqrt{1-q}\}\{1-\sqrt{1-p^2}\}}{p\sqrt{q} + \{1-\sqrt{1-q}\}\{1-\sqrt{1-p^2}\}}$ V. T. 122, N. 8.

8) $\int Arccos\,x.\left\{\frac{1+qx^2}{(1-qx^2)^2}\, l\left(\frac{1+px}{1-px}\right) + \frac{2p}{1-qx^2}\,\frac{x}{1-p^2x^2}\right\}dx =$

$= \frac{\pi}{\sqrt{q(1-q)}}\, l\frac{p\sqrt{q} + \{1-\sqrt{1-q}\}\{1-\sqrt{1-p^2}\}}{p\sqrt{q} - \{1-\sqrt{1-q}\}\{1-\sqrt{1-p^2}\}}$ V. T. 122, N. 8.

9) $\int Arccos\,x \,.\, \{1+2a\,lx\}\, x^{2a-1}\,dx = \frac{3^{a-1/2}}{2^{a/2}}\,\frac{\pi}{2}\left(-l2 + \sum_1^{2a}\frac{(-1)^{n-1}}{n}\right)$ V. T. 118, N. 5.

10) $\int Arccos\,x \,.\, \{1+(2a+1)\,lx\}\, x^{2a}\,dx = \frac{2^{a/2}}{1^{a+1/2}}\left(-l2 + \sum_1^{2a+1}\frac{(-1)^{n-1}}{n}\right)$ V. T. 118, N. 6.

11) $\int Arccos\,x \,.\, l(1+qx^2)\,.\,x\,dx = \frac{\pi}{4}\left\{\frac{q+2}{q}\, l\frac{1+\sqrt{1+q}}{2} - \frac{\sqrt{1+q}}{1+\sqrt{1+q}}\right\}$ $[q^2 < 1]$

V. T. 120, N. 7, T. 229, N. 5 et T. 231, N. 12.

12) $\int Arctg\,x \,.\, lx\frac{dx}{x} = -\frac{1}{32}\pi^3$ V. T. 109, N. 3.

13) $\int Arctg\,x \,.\, (lx)^3\frac{dx}{x} = -\frac{5}{256}\pi^5$ V. T. 109, N. 17.

14) $\int Arctg\,x \,.\, (lx)^5\frac{dx}{x} = -\frac{61}{1536}\pi^7$ V. T. 109, N. 25.

15) $\int Arctg\,x\,.(lx)^{q-1}\frac{dx}{x}=\frac{1}{q}\,Cos\,q\pi.\Gamma(q+1)\sum_1^\infty\frac{(-1)^{n+1}}{(2n+1)^{q+1}}$ V. T. 110, N. 11.

16) $\int\frac{Arctg(lx)}{1-x^{-p}}\frac{dx}{x}=\frac{1}{2p}\left\{2\pi l\Gamma\left(\frac{p}{2\pi}+1\right)-\pi lp+p\left(1-l\frac{p}{2\pi}\right)\right\}$ V. T. 282, N. 3.

17) $\int l(1+x).\left(Arctg\,x+\frac{x}{1+x^2}\right)dx=\frac{1}{2}l2-\frac{\pi}{4}+\frac{3\pi}{8}l2.$

18) $\int l(1-x).\left(Arctg\,x+\frac{x}{1+x^2}\right)dx=\frac{1}{2}l2-\frac{\pi}{4}+\frac{\pi}{8}l2+\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)^2}.$

19) $\int l(1+x^2).\left(Arctg\,x+\frac{x}{1+x^2}\right)dx=l2+\frac{1}{16}\pi^2-\frac{\pi}{2}+\frac{\pi}{4}l2.$

20) $\int l(1-x^2).\left(Arctg\,x+\frac{x}{1+x^2}\right)dx=l2-\frac{\pi}{2}+\frac{\pi}{2}l2+\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)^2}.$

21) $\int l(1-x^4).\left(Arctg\,x+\frac{x}{1+x^2}\right)dx=2l2+\frac{1}{16}\pi^2-\pi+\frac{3\pi}{4}l2+\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)^2}.$

Sur 17) à 21) voyez M, II, D. 1.

F. Alg. irrat. à dén. $\sqrt{1-p^2x^2}$;
Logar. en num. $l(1-p^2x^2)$; TABLE 436. Lim. 0 et 1.
Circ. Inverse $Arcsin\,x$; $[p^2<1]$.

1) $\int Arcsin\,x\,.l(1-p^2x^2)\frac{x\,dx}{\sqrt{1-p^2x^2}}=\frac{1}{p^2}\left[\left\{1-\frac{1}{2}l(1-p^2)\right\}\pi\sqrt{1-p^2}+(2-p^2)F'(p)-\right.$
$\left.-\left\{4-\frac{1}{2}l(1-p^2)\right\}E'(p)\right]$ V. T. 426, N. 3.

2) $\int Arcsin\,x\,.l(1-p^2x^2)\frac{x^3\,dx}{\sqrt{1-p^2x^2}}=\frac{1}{27p^4}\left[2\left\{(8+p^2)-\frac{3}{2}(2+p^2)\,l(1-p^2)\right\}\pi\sqrt{1-p^2}+\right.$
$+\left\{(32-5p^2-6p^4)+\frac{3}{2}(1-p^2)\,l(1-p^2)\right\}F'(p)-\left\{2(40+7p^2)-\right.$
$\left.\left.-\frac{3}{2}(5+2p^2)\,l(1-p^2)\right\}E'(p)\right]$ V. T. 426, N. 5.

3) $\int Arcsin\,x\,.l(1-p^2x^2)\frac{x\,dx}{\sqrt{1-p^2x^2}^3}=\frac{1}{p^2}\left[\left\{1+\frac{1}{2}l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}-\right.$
$\left.-\left\{2+\frac{1}{2}l(1-p^2)\right\}F'(p)\right]$ V. T. 426, N. 9.

4) $$\int Arcsin\,x\,.\,l(1-p^2x^2)\frac{x^3\,dx}{\sqrt{1-p^2x^2}^3}=\frac{1}{p^4}\left[\left\{p^2+\frac{1}{2}(2-p^2)\,l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}-\right.$$
$$\left.-\left\{(4-p^2)+\frac{1}{2}\,l(1-p^2)\right\}F'(p)+\left\{4-\frac{1}{2}\,l(1-p^2)\right\}E'(p)\right]$$ V. T. 426, N. 12.

5) $$\int Arcsin\,x\,.\,l(1-p^2x^2)\frac{x^5\,dx}{\sqrt{1-p^2x^2}^3}=\frac{1}{27p^6}\left[3\left\{(8-16p^2-p^4)+\right.\right.$$
$$\left.+\frac{3}{2}(8-4p^2-p^4)\,l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}-\left\{2(70-16p^2-3p^4)+\right.$$
$$\left.\left.+\frac{3}{2}(10-p^2)\,l(1-p^2)\right\}F'(p)+\{2(94+7p^2)-3(7+p^2)\,l(1-p^2)\}E'(p)\right]$$
V. T. 426, N. 14.

6) $$\int Arcsin\,x\,.\,l(1-p^2x^2)\frac{x\,dx}{\sqrt{1-p^2x^2}^5}=\frac{1}{9p^2(1-p^2)}\left[\left\{1+\frac{3}{2}\,l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}+\right.$$
$$\left.+3(2-p^2)F'(p)-\left\{8+\frac{3}{2}\,l(1-p^2)\right\}E'(p)\right]$$ V. T. 427, N. 1.

7) $$\int Arcsin\,x\,.\,l(1-p^2x^2)\frac{x^3\,dx}{\sqrt{1-p^2x^2}^5}=\frac{1}{9p^4(1-p^2)}\left[-\left\{(8-9p^2)+\right.\right.$$
$$\left.+\frac{3}{2}(2-3p^2)\,l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}+3\left\{(8-7p^2)+\frac{3}{2}(1-p^2)\,l(1-p^2)\right\}F'(p)-$$
$$\left.-\left\{8+\frac{3}{2}\,l(1-p^2)\right\}E'(p)\right]$$ V. T. 427, N. 5.

8) $$\int Arcsin\,x\,.\,l(1-p^2x^2)\frac{x^5\,dx}{\sqrt{1-p^2x^2}^5}=\frac{1}{9p^6(1-p^2)}\left[-\left\{(8-9p^2)+\right.\right.$$
$$\left.+\frac{3}{2}(8-12p^2+3p^4)\,l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}+3\{(20-22p^2+3p^4)+$$
$$\left.+3(1-p^2)\,l(1-p^2)\}F'(p)+\left\{-4(11-9p^2)+\frac{3}{2}(2-3p^2)\,l(1-p^2)\right\}E'(p)\right]$$
V. T. 427, N. 8.

9) $$\int Arcsin\,x\,.\,l(1-p^2x^2)\frac{x^7\,dx}{\sqrt{1-p^2x^2}^5}=\frac{1}{27p^8(1-p^2)}\left[-3\left\{p^2(24-24p^2-p^4)+\right.\right.$$
$$\left.+\frac{3}{2}(16-24p^2+6p^4+p^6)\,l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}+\left\{(320-370p^2+53p^4+6p^6)+\right.$$
$$\left.+\frac{3}{2}(28-p^2)(1-p^2)\,l(1-p^2)\right\}F'(p)+\left\{-2(160-141p^2-7p^4)+\right.$$
$$\left.\left.+\frac{3}{2}(20-21p^2-2p^4)\,l(1-p^2)\right\}E'(p)\right]$$ V. T. 427, N. 10.

10) $$\int Arcsin\, x\,.\,l(1-p^2x^2)\frac{x\,dx}{\sqrt{1-p^2x^2}^7}=\frac{1}{225p^2(1-p^2)^2}\left[\left\{1+\frac{5}{2}l(1-p^2)\right\}\frac{9\pi}{\sqrt{1-p^2}}+\right.$$
$$+\left\{2(53-53p^2+15p^4)+\frac{15}{2}(1-p^2)l(1-p^2)\right\}F'(p)-$$
$$\left.-(2-p^2)\{62+15l(1-p^2)\}E'(p)\right]$$ V. T. 428, N. 1.

11) $$\int Arcsin\, x\,.\,l(1-p^2x^2)\frac{x^3\,dx}{\sqrt{1-p^2x^2}^7}=\frac{1}{225p^4(1-p^2)^2}\left[-\left\{(16-25p^2)+\right.\right.$$
$$\left.+\frac{15}{2}(2-5p^2)l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}+\left\{-(44-119p^2+45p^4)+\right.$$
$$\left.\left.+\frac{15}{2}(1-p^2)l(1-p^2)\right\}F'(p)+\left\{2(38-69p^2)+\frac{15}{2}(1-3p^2)l(1-p^2)\right\}E'(p)\right]$$
V. T. 428, N. 6.

12) $$\int Arcsin\, x\,.\,l(1-p^2x^2)\frac{x^5\,dx}{\sqrt{1-p^2x^2}^7}=\frac{1}{225p^6(1-p^2)^2}\left[\left\{(184-400p^2+225p^4)+\right.\right.$$
$$\left.+\frac{15}{2}(8-20p^2+15p^4)l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}-\left\{2(322-622p^2+285p^4)+\right.$$
$$\left.+\frac{15}{2}(14-15p^2)(1-p^2)l(1-p^2)\right\}F'(p)+\{2(138-169p^2)+$$
$$\left.+15(3-4p^2)l(1-p^2)\}E'(p)\right]$$ V. T. 428, N. 10.

13) $$\int Arcsin\, x\,.\,l(1-p^2x^2)\frac{x^7\,dx}{\sqrt{1-p^2x^2}^7}=\frac{1}{225p^8(1-p^2)^2}\left[3\left\{(128-200p^2+75p^4)+\right.\right.$$
$$\left.+\frac{15}{2}(16-40p^2-30p^4-5p^6)l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}-\left\{(2144-4394p^2+2445p^4-225p^6)+\right.$$
$$\left.+\frac{15}{2}(44-45p^2)(1-p^2)l(1-p^2)\right\}F'(p)+\left\{2(688-1169p^2+450p^4)-\right.$$
$$\left.\left.-\frac{15}{2}(4-17p^2+15p^4)l(1-p^2)\right\}E'(p)\right]$$ V. T. 428, N. 13.

14) $$\int Arcsin\, x\,.\,l(1-p^2x^2)\frac{x^9\,dx}{\sqrt{1-p^2x^2}^7}=\frac{1}{675p^{10}(1-p^2)^2}\left[3\left\{384-1200p^4+800p^6+25p^8)+\right.\right.$$
$$\left.+\frac{15}{2}(128-320p^2+240p^4-40p^6-5p^8)l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}-\left\{2(7216-15216p^2+\right.$$
$$\left.+8955p^4-925p^6-75p^8)+\frac{15}{2}(272-280p^2+5p^4)(1-p^2)l(1-p^2)\right\}F'(p)+$$
$$\left.+\{2(6064-11032p^2-4700p^4+175p^6)-15(56-128p^2+70p^4+5p^6)l(1-p^2)\}E'(p)\right]$$
V. T. 428, N. 15.

F. Alg. irrat. à dén. $\sqrt{1-p^2+p^2x^2}^{a}$;
Logar. en num. $l(1-p^2+p^2x^2)$; TABLE 437. Lim. 0 et 1.
Circ. Inverse $Arcsin\, x$; $[p^2<1]$.

1) $$\int Arcsin\, x \,.\, l(1-p^2+p^2x^2)\frac{x\,dx}{\sqrt{1-p^2+p^2x^2}}=\frac{1}{p^2}\Big[-\pi-(2-p^2)F'(p)+\Big\{4-\frac{1}{2}l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 426, N. 6.

2) $$\int Arcsin\, x \,.\, l(1-p^2+p^2x^2)\frac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}}=\frac{1}{27p^4}\Big[3(8-9p^2)\pi+\Big\{(32-59p^2+21p^4)+\frac{3}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)-\Big\{2(40-47p^2)-\frac{3}{2}(5-7p^2)\,l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 426, N. 8.

3) $$\int Arcsin\, x \,.\, l(1-p^2+p^2x^2)\frac{x\,dx}{\sqrt{1-p^2+p^2x^2}^3}=\frac{1}{p^2}\Big[-\pi+\Big\{2+\frac{1}{2}l(1-p^2)\Big\}F'(p)\Big]$$ V. T. 426, N. 15.

4) $$\int Arcsin\, x \,.\, l(1-p^2+p^2x^2)\frac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}^3}=\frac{1}{p^4}\Big[-p^2\pi-\Big\{(4-3p^2)+\frac{1}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)+\Big\{4-\frac{1}{2}l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 426, N. 18.

5) $$\int Arcsin\, x \,.\, l(1-p^2+p^2x^2)\frac{x^5\,dx}{\sqrt{1-p^2+p^2x^2}^3}=\frac{1}{27p^6}\Big[3(8-9p^2)\pi+\Big\{2(70-124p^2+51p^4)+\frac{3}{2}(10-9p^2)(1-p^2)\,l(1-p^2)\Big\}F'(p)+\Big\{-2(94-101p^2)+\frac{3}{2}(7-8p^2)\,l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 426, N. 20.

6) $$\int Arcsin\, x \,.\, l(1-p^2+p^2x^2)\frac{x\,dx}{\sqrt{1-p^2+p^2x^2}^5}=\frac{1}{9p^2(1-p^2)}\Big[-(1-p^2)\pi-3(2-p^2)F'(p)+\Big\{8+\frac{3}{2}l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 427, N. 11.

7) $$\int Arcsin\, x \,.\, l(1-p^2+p^2x^2)\frac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}^5}=\frac{1}{9p^4}\Big[-(8+p^2)\pi+3\Big\{(8-p^2)+\frac{3}{2}l(1-p^2)\Big\}F'(p)-\Big\{8+\frac{3}{2}l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 427, N. 15.

8) $$\int Arcsin\, x \,.\, l(1-p^2+p^2x^2)\frac{x^5\,dx}{\sqrt{1-p^2+p^2x^2}^5}=\frac{1}{9p^6}\Big[(8-16p^2-p^4)\pi-3\{(20-18p^2+p^4)+3(1-p^2)\,l(1-p^2)\}F'(p)+\Big\{4(11-2p^2)-\frac{3}{2}(2+p^2)\,l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 427, N. 18.

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9) $$\int Arcsin\,x\,.\,l(1-p^2+p^2x^2)\frac{x^7\,dx}{\sqrt{1-p^2+p^2x^2}^5}=\frac{1}{27p^8}\Big[3p^2(40-40p^2-p^4)\pi+$$
$$+\Big\{(320-590p^2+273p^4-9p^6)+\frac{3}{2}(28-27p^2)(1-p^2)l(1-p^2)\Big\}F'(p)+$$
$$+\Big\{-2(160-179p^2+12p^4)+\frac{3}{2}(20-19p^2-3p^4)l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 427, N. 20.

10) $$\int Arcsin\,x\,.\,l(1-p^2+p^2x^2)\frac{x\,dx}{\sqrt{1-p^2+p^2x^2}^7}=\frac{1}{225p^2(1-p^2)^2}\Big[-9(1-p^2)^2\pi-$$
$$-\Big\{2(53-53p^2+15p^4)+\frac{15}{2}(1-p^2)l(1-p^2)\Big\}F'(p)+(2-p^2)\{62+15l(1-p^2)\}E'(p)\Big]$$
V. T. 429, N. 1.

11) $$\int Arcsin\,x\,.\,l(1-p^2+p^2x^2)\frac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}^7}=\frac{1}{225p^4(1-p^2)}\Big[-(16+9p^2)(1-p^2)\pi+$$
$$+\Big\{-(44+31p^2-30p^4)+\frac{15}{2}(1-p^2)l(1-p^2)\Big\}F'(p)+\Big\{2(38+31p^2)+$$
$$+\frac{15}{2}(1+2p^2)l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 429, N. 6.

12) $$\int Arcsin\,x\,.\,l(1-p^2+p^2x^2)\frac{x^5\,dx}{\sqrt{1-p^2+p^2x^2}^7}=\frac{1}{225p^6}\Big[-(184+32p^2+9p^4)\pi+$$
$$+\Big\{2(322-22p^2-15p^4)+\frac{15}{2}(14+p^2)l(1-p^2)\Big\}F'(p)-\{2(138+31p^2)+$$
$$+15(3+p^2)l(1-p^2)\}E'(p)\Big]$$ V. T. 429, N. 10.

13) $$\int Arcsin\,x\,.\,l(1-p^2+p^2x^2)\frac{x^7\,dx}{\sqrt{1-p^2+p^2x^2}^7}=\frac{1}{225p^8}\Big[-(184+272p^2-64p^4+9p^6)\pi-$$
$$-\Big\{(2144-2038p^2+89p^4+30p^6)+\frac{15}{2}(44+p^2)(1-p^2)l(1-p^2)\Big\}F'(p)+$$
$$+\Big\{2(688-207p^2+31p^4)-\frac{15}{2}(4+9p^2+2p^4)l(1-p^2)\Big\}E'(p)\Big]$$
V. T. 429, N. 13.

14) $$\int Arcsin\,x\,.\,l(1-p^2+p^2x^2)\frac{x^9\,dx}{\sqrt{1-p^2+p^2x^2}^7}=\frac{1}{675p^{10}}\Big[(552-304p^2-584p^4+$$
$$+144p^6-27p^8)\pi+\Big\{2(7216-13648p^2+6603p^4-201p^6-45p^8)+$$
$$+\frac{15}{2}(272-264p^2-3p^4)(1-p^2)l(1-p^2)\Big\}F'(p)-\Big\{2(6064-7160p^2+$$
$$+828p^4-93p^6)+30(56-18p^2-18p^4-3p^6)l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 429, N. 15.

F. Alg. irrat. à dén. $\sqrt{1-p^2x^2}^{\,a}$;
Logar. en num. $l(1-p^2x^2)$;
Circ. Inverse $Arccos\, x$; $[p^2<1]$.

TABLE 438.

Lim. 0 et 1.

1) $\int Arccos\, x\,.\,l(1-p^2x^2)\frac{x\,dx}{\sqrt{1-p^2x^2}}=\frac{1}{p^2}\left[-\pi-(2-p^2)F'(p)+\left\{4-\frac{1}{2}l(1-p^2)\right\}E'(p)\right]$

V. T. 426, N. 6.

2) $\int Arccos\, x\,.\,l(1-p^2x^2)\frac{x^3\,dx}{\sqrt{1-p^2x^2}}=\frac{1}{27p^4}\left[-24\pi-\left\{(32-5p^2-6p^4)+\right.\right.$
$\left.\left.+\frac{3}{2}(1-p^2)\,l(1-p^2)\right\}F'(p)+\left\{2(40+7p^2)-\frac{3}{2}(5+2p^2)\,l(1-p^2)\right\}E'(p)\right]$

V. T. 426, N. 7.

3) $\int Arccos\, x\,.\,l(1-p^2x^2)\frac{x\,dx}{\sqrt{1-p^2x^2}^3}=\frac{1}{p^2}\left[-\pi+\left\{2+\frac{1}{2}l(1-p^2)\right\}F'(p)\right]$ V. T. 426, N. 15.

4) $\int Arccos\, x\,.\,l(1-p^2x^2)\frac{x^3\,dx}{\sqrt{1-p^2x^2}^3}=\frac{1}{p^4}\left[\left\{(4-p^2)+\frac{1}{2}l(1-p^2)\right\}F'(p)-\right.$
$\left.-\left\{4-\frac{1}{2}l(1-p^2)\right\}E'(p)\right]$ V. T. 426, N. [illegible]

5) $\int Arccos\, x\,.\,l(1-p^2x^2)\frac{x^5\,dx}{\sqrt{1-p^2x^2}^3}=\frac{1}{27p^6}\left[24\pi+\left\{2(70-16p^2-3p^4)+\right.\right.$
$\left.\left.+\frac{3}{2}(10-p^2)l(1-p^2)\right\}F'(p)-\left\{2(94+7p^2)-3(7+p^2)\,l(1-p^2)\right\}E'(p)\right]$ V. T. 426, N. [illegible]

6) $\int Arccos\, x\,.\,l(1-p^2x^2)\frac{x\,dx}{\sqrt{1-p^2x^2}^5}=\frac{1}{9p^2(1-p^2)}\left[-(1-p^2)\pi-3(2-p^2)F'(p)+\right.$
$\left.+\left\{8+\frac{3}{2}l(1-p^2)\right\}E'(p)\right]$ V. T. 427, N. [illegible]

7) $\int Arccos\, x\,.\,l(1-p^2x^2)\frac{x^3\,dx}{\sqrt{1-p^2x^2}^5}=\frac{1}{9p^4(1-p^2)}\left[8(1-p^2)\pi-3\left\{(8-7p^2)+\right.\right.$
$\left.\left.+\frac{3}{2}(1-p^2)\,l(1-p^2)\right\}F'(p)+\left\{8+\frac{3}{2}l(1-p^2)\right\}E'(p)\right]$ V. T. 427, N. [illegible]

8) $\int Arccos\, x\,.\,l(1-p^2x^2)\frac{x^5\,dx}{\sqrt{1-p^2x^2}^5}=\frac{1}{9p^6(1-p^2)}\left[8(1-p^2)\pi-3\left\{(20-22p^2+3p^4)+\right.\right.$
$\left.\left.+3(1-p^2)\,l(1-p^2)\right\}F'(p)+\left\{4(11-9p^2)-\frac{3}{2}(2-3p^2)\,l(1-p^2)\right\}E'(p)\right]$

V. T. 427, N. 13.

9) $$\int Arccos\,x\,.\,l(1-p^2x^2)\frac{x^7\,dx}{\sqrt{1-p^2x^2}^5}=\frac{1}{27p^8(1-p^2)}\Big[-\Big\{(320-370p^2+53p^4+6p^6)+ + \frac{3}{2}(28-p^2)(1-p^2)\,l(1-p^2)\Big\}F'(p)+\Big\{2(160-141p^2-7p^4)- - \frac{3}{2}(20-21p^2-2p^4)\,l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 427, N. 14.

10) $$\int Arccos\,x\,.\,l(1-p^2x^2)\frac{x\,dx}{\sqrt{1-p^2x^2}^7}=\frac{1}{225p^2(1-p^2)^2}\Big[-9(1-p^2)^2\pi- -\Big\{2(53-53p^2+15p^4)+\frac{15}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)+ +(2-p^2)\{62+15\,l(1-p^2)\}E'(p)\Big]$$ V. T. 429, N. 1.

11) $$\int Arccos\,x\,.\,l(1-p^2x^2)\frac{x^3\,dx}{\sqrt{1-p^2x^2}^7}=\frac{1}{225p^4(1-p^2)^2}\Big[16(1-p^2)^2\pi+ +\Big\{(44-119p^2+45p^4)-\frac{15}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)-\Big\{2(38-69p^2)+ +\frac{15}{2}(1-3p^2)\,l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 429, N. 2.

12) $$\int Arccos\,x\,.\,l(1-p^2x^2)\frac{x^5\,dx}{\sqrt{1-p^2x^2}^7}=\frac{1}{225p^6(1-p^2)^2}\Big[-184(1-p^2)^2\pi+ +\Big\{2(322-622p^2+285p^4)+\frac{15}{2}(14-15p^2)(1-p^2)\,l(1-p^2)\Big\}F'(p)- -\{2(138-169p^2)+15(3-4p^2)\,l(1-p^2)\}E'(p)\Big]$$ V. T. 429, N. 3.

13) $$\int Arccos\,x\,.\,l(1-p^2x^2)\frac{x^7\,dx}{\sqrt{1-p^2x^2}^7}=\frac{1}{225p^8(1-p^2)^2}\Big[16(1-p^2)^2\pi+ +\Big\{(2144-4394p^2+2445p^4-225p^6)+\frac{15}{2}(44-45p^2)(1-p^2)\,l(1-p^2)\Big\}F'(p)+ +\Big\{-2(688-1169p^2+450p^4)+\frac{15}{2}(4-17p^2+15p^4)\,l(1-p^2)\Big\}E'(p)\Big]$$

V. T. 429, N. 4.

14) $\int Arccos\, x \,.\, l(1-p^2x^2)\dfrac{x^9\,dx}{\sqrt{1-p^2x^2}^7}=\dfrac{1}{675p^{10}(1-p^2)^2}\Big[16(1-p^2)^2\pi+$
$+\Big\{2(7216-15216p^2+8955p^4-925p^6-75p^8)+\dfrac{15}{2}(272-280p^2+5p^4)$
$(1-p^2)l(1-p^2)\Big\}F'(p)+\{-2(6064-11032p^2+4700p^4+175p^6)+$
$+15(56-128p^2+70p^4+5p^6)l(1-p^2)\}E'(p)\Big]$ V. T. 429, N. 5.

F. Alg. irrat. à dén. $\sqrt{1-p^2+p^2x^2}^a$;
Logar. en num. $l(1-p^2+p^2x^2)$; TABLE 439. Lim. 0 et 1.
Circ. Inverse $Arccos\, x$; $[p^2<1]$.

1) $\int Arccos\, x \,.\, l(1-p^2+p^2x^2)\dfrac{x\,dx}{\sqrt{1-p^2+p^2x^2}}=\dfrac{1}{p^2}\Big[\Big\{1-\dfrac{1}{2}l(1-p^2)\Big\}\pi\sqrt{1-p^2}+$
$+(2-p^2)F'(p)-\Big\{4-\dfrac{1}{2}l(1-p^2)\Big\}E'(p)\Big]$ V. T. 426, N. 3.

2) $\int Arccos\, x \,.\, l(1-p^2+p^2x^2)\dfrac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}}=\dfrac{1}{27p^4}\Big[-3\Big\{8-\dfrac{3}{2}(1-p^2)\Big\}\pi\sqrt{1-p^2}^3-$
$-\Big\{(32-59p^2+21p^4)+\dfrac{3}{2}(1-p^2)l(1-p^2)\Big\}F'(p)+\Big\{2(40-47p^2)-$
$-\dfrac{3}{2}(5-7p^2)l(1-p^2)\Big\}E'(p)\Big]$ V. T. 426, N. 1.

3) $\int Arccos\, x \,.\, l(1-p^2+p^2x^2)\dfrac{x\,dx}{\sqrt{1-p^2+p^2x^2}^3}=\dfrac{1}{p^2}\Big[\Big\{1+\dfrac{1}{2}l(1-p^2)\Big\}\dfrac{\pi}{\sqrt{1-p^2}}-$
$-\Big\{2+\dfrac{1}{2}l(1-p^2)\Big\}F'(p)\Big]$ V. T. 426, N. 9.

4) $\int Arccos\, x \,.\, l(1-p^2+p^2x^2)\dfrac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}^3}=\dfrac{1}{p^4}\Big[\quad l(1-p^2)\,.\,\pi\sqrt{1-p^2}+$
$+\Big\{(4-3p^2)+\dfrac{1}{2}(1-p^2)l(1-p^2)\Big\}F'(p)-\Big\{4-\dfrac{1}{2}l(1-p^2)\Big\}E'(p)\Big]$

V. T. 426, N. 10.

5) $$\int Arccos\,x\,.\,l(1-p^2+p^2x^2)\frac{x^5\,dx}{\sqrt{1-p^2+p^2x^2}^3}=\frac{1}{27p^6}\Big[-12\{2-3\,l(1-p^2)\}\pi\sqrt{1-p^2}^3-$$
$$-\Big\{2(70-124p^2+51p^4)+\frac{3}{2}(10-9p^2)(1-p^2)\,l(1-p^2)\Big\}F'(p)+2\{(94-101p^2)-$$
$$-3(7-8p^2)\,l(1-p^2)\}E'(p)\Big]$$ V. T. 426, N. 11.

6) $$\int Arccos\,x\,.\,l(1-p^2+p^2x^2)\frac{x\,dx}{\sqrt{1-p^2+p^2x^2}^5}=\frac{1}{9p^2(1-p^2)}\Big[\Big\{1+\frac{3}{2}\,l(1-p^2)\Big\}\frac{\pi}{\sqrt{1-p^2}}+$$
$$+3(2-p^2)F'(p)-\Big\{8+\frac{3}{2}\,l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 427, N. 1.

7) $$\int Arccos\,x\,.\,l(1-p^2+p^2x^2)\frac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}^5}=\frac{1}{9p^4}\Big[\Big\{8+3\,l(1-p^2)\Big\}\frac{\pi}{\sqrt{1-p^2}}-$$
$$-3\Big\{(8-p^2)+\frac{3}{2}\,l(1-p^2)\Big\}F'(p)+\Big\{8+\frac{3}{2}\,l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 427, N. 2.

8) $$\int Arccos\,x\,.\,l(1-p^2+p^2x^2)\frac{x^5\,dx}{\sqrt{1-p^2+p^2x^2}^5}=\frac{1}{9p^6}\Big[-4\{2+3\,l(1-p^2)\}\pi\sqrt{1-p^2}+$$
$$+3\{20-18p^2+p^4)+3(1-p^2)\,l(1-p^2)\}F'(p)-\Big\{4(11-2p^2)-$$
$$-\frac{3}{2}(2+p^2)\,l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 427, N. 3.

9) $$\int Arccos\,x\,.\,l(1-p^2+p^2x^2)\frac{x^7\,dx}{\sqrt{1-p^2+p^2x^2}^5}=\frac{1}{27p^8}\Big[72\,l(1-p^2)\,.\,\pi\sqrt{1-p^2}^3-$$
$$-\Big\{(320-590p^2+273p^4-9p^6)+\frac{3}{2}(28-27p^2)(1-p^2)\,l(1-p^2)\Big\}F'(p)+$$
$$+\{2(160-179p^2+12p^4)-\frac{3}{2}(20-19p^2-3p^4)\,l(1-p^2)\}E'(p)\Big]$$ V. T. 427, N. 4.

10) $$\int Arccos\,x\,.\,l(1-p^2+p^2x^2)\frac{x\,dx}{\sqrt{1-p^2+p^2x^2}^7}=\frac{1}{225p^2(1-p^2)^2}\Big[\Big\{1+\frac{5}{2}\,l(1-p^2)\Big\}$$
$$\frac{9\pi}{\sqrt{1-p^2}}+\Big\{2(53-53p^2+15p^4)+\frac{15}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)-(2-p^2)$$
$$\{62+15\,l(1-p^2)\}E'(p)\Big]$$ V. T. 428, N. 1.

F. Alg. irrat. à dén. $\sqrt{1-p^2+p^2x^2}$;
Logar. en num. $l(1-p^2+p^2x^2)$; **TABLE 439, suite.** Lim. 0 et 1.
Circ. Inverse *Arccos* x; $[p^2<1]$.

11) $$\int Arccos\,x\,.\,l(1-p^2+p^2x^2)\frac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}^{\,7}}=\frac{1}{225p^4(1-p^2)}\Big[\{16+15\,l(1-p^2)\}\frac{\pi}{\sqrt{1-p^2}}+\Big\{(44+31p^2-30p^4)-\frac{15}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)-\Big\{2(38+31p^2)+\frac{15}{2}(1+2p^2)\,l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 428, N. 2.

12) $$\int Arccos\,x\,.\,l(1-p^2+p^2x^2)\frac{x^5\,dx}{\sqrt{1-p^2+p^2x^2}^{\,7}}=\frac{1}{225p^6}\Big[4\{46+15\,l(1-p^2)\}\frac{\pi}{\sqrt{1-p^2}}-\Big\{2(322-22p^2-15p^4)+\frac{15}{2}(14+p^2)\,l(1-p^2)\Big\}F'(p)+\{2(138+31p^2)+15(3+p^2)\,l(1-p^2)\}E'(p)\Big]$$ V. T. 428, N. 3.

13) $$\int Arccos\,x\,.\,l(1-p^2+p^2x^2)\frac{x^7\,dx}{\sqrt{1-p^2+p^2x^2}^{\,7}}=\frac{1}{225p^8}\Big[-24\{16+15l(1-p^2)\}\pi\sqrt{1-p^2}+\Big\{(2144-2038p^2+89p^4+30p^6)+\frac{15}{2}(44+p^2)(1-p^2)\,l(1-p^2)\Big\}F'(p)+\Big\{-2(688-207p^2+31p^4)+\frac{15}{2}(4+9p^2+2p^4)\,l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 428, N. 4.

14) $$\int Arccos\,x\,.\,l(1-p^2+p^2x^2)\frac{x^9\,dx}{\sqrt{1-p^2+p^2x^2}^{\,7}}=\frac{1}{675p^{10}}\Big[576\{2+5\,l(1-p^2)\}\pi\sqrt{1-p^2}^{\,3}-\Big\{2(7216-13648p^2+6603p^4-201p^6-45p^8)+\frac{15}{2}(272-264p^2-3p^4)(1-p^2)\,l(1-p^2)\Big\}F'(p)+\{2(6064-7160p^2+828p^4-93p^6)+30(56-18p^2-18p^4-3p^6)\,l(1-p^2)\}E'(p)\Big]$$ V. T. 428, N. 5.

F. Alg. irrat. d'autre forme;
Logarithme en num.; **TABLE 440.** Lim. 0 et 1.
Circulaire Inverse; $[p^2<1]$.

1) $$\int Arcsin\,x\,.\,l(1-p^2x^2)\,.\,x\,dx\sqrt{1-p^2x^2}=\frac{1}{27p^2}\Big[3\pi\Big\{1-\frac{3}{2}\,l(1-p^2)\Big\}\sqrt{1-p^2}^{\,3}+\Big\{2(11-11p^2+3p^4)-\frac{3}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)-(2-p^2)\{14-3\,l(1-p^2)\}E'(p)\Big]$$ V. T. 426, N. 1.

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2) $\int Arcsin\, x\, .\, l(1-p^2+p^2x^2)\, .\, x\,dx\,\sqrt{1-p^2+p^2x^2} = \frac{1}{27p^2}\Big[-3\pi-\Big\{2(11-11p^2+3p^4)-$
$-\frac{3}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)+(2-p^2)\{14-3\,l(1-p^2)\}E'(p)\Big]$ V. T. 426, N. 2.

3) $\int Arcsin\, x\, .\, lx\,\frac{x\,dx}{\sqrt{1-x^2}^3}=\frac{1}{8}\pi^2-2\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 243, N. 10 et T. 108, N. 11.

4) $\int (Arcsin\, x)^{q-1}\, .\, lx\frac{dx}{\sqrt{1-x^2}}=-\frac{1}{q}\left(\frac{\pi}{2}\right)^q\left\{1-\sum_1^\infty\frac{2}{q+2m}\sum_1^\infty\frac{1}{(2n)^{2m}}\right\}$ V. T. 230, N. 2.

5) $\int Arccos\, x\, .\, l(1-p^2x^2)\, .\, x\,dx\,\sqrt{1-p^2x^2}=\frac{1}{27p^2}\Big[-3\pi-\Big\{2(11-11p^2+3p^4)-$
$-\frac{3}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)+(2-p^2)\{14-3\,l(1-p^2)\}E'(p)\Big]$ V. T. 426, N. 3.

6) $\int Arccos\, x\, .\, l(1-p^2+p^2x^2)\, .\, x\,dx\,\sqrt{1-p^2+p^2x^2}=\frac{1}{27p^2}\Big[3\pi\Big\{1-\frac{3}{2}\,l(1-p^2)\Big\}\sqrt{1-p^2}^3+$
$+\Big\{2(11-11p^2+3p^4)-\frac{3}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)-(2-p^2)\{14-3\,l(1-p^2)\}E'(p)\Big]$
V. T. 426, N. 1.

7) $\int (Arccos\, x)^{q-1}\, l(1+x)\,\frac{dx}{\sqrt{1-x^2}}=\frac{1}{q}\left(\frac{\pi}{2}\right)^q\sum_1^\infty\frac{2^{2m}-1}{4^{m-1}}\,\frac{1}{q+2m}\sum_1^\infty\frac{1}{(2n)^{2m}}$ V. T. 233, N. 1.

8) $\int (Arccos\, x)^{q-1}\, l(1-x)\frac{dx}{\sqrt{1-x^2}}=\frac{1}{q}\left(\frac{\pi}{2}\right)^q\left\{-2+\sum_1^\infty\frac{1}{4^{m-1}}\,\frac{1}{q+2m}\sum_1^\infty\frac{1}{(2n)^{2m}}\right\}$ V. T. 233, N. 2.

9) $\int (Arccos\, x)^{q-1}\, .\, l(1-x^2)\,\frac{dx}{\sqrt{1-x^2}}=\frac{2}{q}\left(\frac{\pi}{2}\right)^q\left\{-1+\sum_1^\infty\frac{2}{q+2m}\sum_1^\infty\frac{1}{(2n)^{2m}}\right.$ V. T. 233, N. 5.

F. Algébrique;
Logar. en dénom.; TABLE 441. Lim. 0 et 1.
Circul. Inverse.

1) $\int Arctg\, x\,\frac{lx}{\{\pi^2+(lx)^2\}^2}\,\frac{dx}{x}=\frac{3-\pi}{8\pi}$ V. T. 129, N. 6.

2) $\int Arctg\, x\,\frac{lx}{\{\pi^2+(lx^2)^2\}^2}\,\frac{dx}{x}=\frac{l2-1}{32\pi}$ V. T. 129, N. 7.

3) $\int Arctg\, x\,\frac{lx}{\{q^2+(lx)^2\}^2}\,\frac{dx}{x}=\frac{1}{8q}\left\{-\frac{\pi}{q}+Z'\left(\frac{2q+3\pi}{4\pi}\right)-Z'\left(\frac{2q+\pi}{4\pi}\right)\right\}$ V. T. 129, N. 9.

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4) $\int Arccot\, x \frac{lx}{\{\pi^2+(lx)^2\}^2}\frac{dx}{x}=\frac{\pi-5}{8\pi}$ V. T. 129, N. 6.

5) $\int Arccot\, x \frac{lx}{\{\pi^2+(lx^2)^2\}^2}\frac{dx}{x}=-\frac{l2+1}{32\pi}$ V. T. 129, N. 7.

6) $\int Arccot\, x \frac{lx}{\{q^2+(lx)^2\}^2}\frac{dx}{x}=\frac{1}{8q}\left\{-\frac{\pi}{q}+Z'\left(\frac{2q+\pi}{4\pi}\right)-Z'\left(\frac{2q+3\pi}{4\pi}\right)\right\}$ V. T. 129, N. 9.

7) $\int \frac{Arccos\, x}{(Arccos\, x)^2+(lx)^2}\frac{dx}{x}=\frac{\pi}{2\, l2}$ V. T. 431, N. 1.

8) $\int \frac{Arccos\, x}{(Arccos\, x)^2+(lx)^2}\frac{x\,dx}{1-x^2}=\infty$ V. T. 431, N. 8.

9) $\int \frac{lx}{(Arccos\, x)^2+(lx)^2}\frac{1}{(1-p)^2-4px^2}\frac{dx}{\sqrt{1-x^2}}=\frac{1}{2}\frac{\pi}{p^2-1}\left\{\frac{1}{l2-l(1+p)}-\frac{1+p}{1-p}\right\}[p^2\leqq 1],=$

$=\frac{1}{2}\frac{\pi}{p^2-1}\left\{\frac{p+1}{p-1}-\frac{1}{l(2p)-l(1+p)}\right\}[p^2>1]$ V. T. 431, N. 10.

10) $\int \frac{Arccos\, x}{(Arccos\, x)^2+(lx)^2}\frac{x}{(1-p)^2-4px^2}dx=\frac{\pi}{8p}\left\{\frac{1}{l2-l(1+p)}-\frac{1}{l2}\right\}[p^2\leqq 1],=$

$=\frac{\pi}{2p}\left\{\frac{1}{l2}-\frac{1}{l(1+p)-l(2p)}\right\}[p^2>1]$ V. T. 431, N. 11.

11) $\int \frac{lx}{(Arccos\, x)^2+(lx)^2}\frac{dx}{\sqrt{1-x^2}}=\frac{\pi}{2}\left(1-\frac{1}{l2}\right)$ V. T. 431, N. 2.

12) $\int \frac{lx}{(Arccos\, x)^2+(lx)^2}\frac{dx}{\sqrt{1-x^2}^3}=\frac{1}{2}\pi$ V. T. 431, N. 7.

13) $\int \frac{lx}{(Arccos\, x)^2+(lx)^2}\frac{dx}{x^2\sqrt{1-x^2}}=\infty$ V. T. 431, N. 6.

F. Algébrique;
Logarithme;
Circulaire Inverse.

TABLE 442

Lim. 0 et ∞.

1) $\int Arctg\, x.(lx)^{2a-1}\frac{dx}{x}=\infty$ V. T. 135, N. 3.

2) $\int Arctg\, px.lx\frac{x\,dx}{(q^2+x^2)^2}=\frac{1}{2q^2}l(1+pq)+\frac{p\pi}{2q(1+pq)}\left\{lp+\frac{1}{1-pq}l(pq)\right\}$
V. T. 135, N. 5 et T. 250, N. 3.

3) $\int Arctg\frac{x}{p}.lx\frac{x\,dx}{(q^2-x^2)^2}=\frac{\pi}{8}\left\{\frac{\pi}{p}-\frac{1}{q^2}l\frac{p^2+q^2}{p^2}\right\}$ V. T. 135, N. 5, 6 et T. 250, N. 6.

4) $\int lx.\left\{\frac{1}{x^2}Arctg\frac{x}{q}.Arctg\frac{x}{p}-\frac{q}{x(q^2+x^2)}Arctg\frac{x}{p}-\frac{p}{x(p^2+x^2)}Arctg\frac{x}{q}\right\}dx=$

$=\frac{\pi}{2}\left\{\frac{1}{q}l\frac{p+q}{p}+\frac{1}{p}l\frac{p+q}{q}\right\}$ V. T. 247, N. 8.

5) $\int Arctg\left(\frac{px}{\sqrt{1+x^2}}\right).lx\frac{x\,dx}{\sqrt{1+x^2}^3}=\frac{\pi}{2}l\left\{p+\sqrt{1+p^2}\right\}-\frac{\pi}{4p\sqrt{1+p^2}}l(1+p^2)\ [p\geqq 1]$

V. T. 135, N. 5 et T. 252, N. 16.

6) $\int\left\{Arctg((l[px]))-Arctg((l[qx]))\right\}\frac{dx}{x}=\pi l\frac{p}{q}$ (VIII, 435).

7) $\int\left\{Arctg((r+sl[px]))-Arctg((r+sl[qx]))\right\}\frac{dx}{x}=\pi l\frac{p}{q}$ (VIII, 435).

8) $\int Arctg\,x.l(1+x^2)\frac{dx}{x^2}=\frac{1}{8}\pi^2$ (IV, 549).

9) $\int Arctg\frac{x}{q}.l(p^2+x^2)\frac{x\,dx}{(p^2+x^2)^2}=\frac{\pi}{2p(p^2-q^2)}\left\{\frac{1}{2}(p-q)+pl(p+q)-ql(2p)\right\}$

V. T. 136, N. 13 et T. 249, N. 3.

10) $\int Arctg\frac{x}{q}.l(p^2+x^2)\frac{x\,dx}{(p^2-x^2)^2}=\frac{\pi}{8p^2(p^2+q^2)}\left\{2(q^2-p^2)l(p+q)-\right.$

$\left.-(p^2+q^2)l(p^2+q^2)-4pq\,Arctg\frac{p}{q}\right\}$ V. T. 136, N. 13, 15 et T. 248, N. 5.

11) $\int Arctg\frac{x}{q}.l(p^2-x^2)^2\frac{dx}{(p^2+x^2)^2}=\frac{\pi}{4p^2(p^2-q^2)}\left\{(p^2+q^2)l(p^2+q^2)+\right.$

$\left.+(p^2-q^2)l(p+q)-2pql(2p^2)\right\}$ V. T. 136, N. 16 et T. 248, N. 5.

12) $\int Arctg\frac{x}{q}.l(p^4-x^4)^2\frac{dx}{(p^2+x^2)^2}=\frac{\pi}{4p^2(p^2-q^2)}\left\{\frac{1}{2}p(p-q)+(p^2+q^2)l(p^2+q^2)+\right.$

$\left.+(2p^2-q^2)l(p+q)-pql(8p^5)\right\}$ V. T. 442, N. 9, 11.

13) $\int Arccot\,x.l(1+x^2)\frac{dx}{x}=\frac{1}{6}\pi^2$ (IV, 550).

14) $\int Arccot\frac{x}{q}.l(p^2+x^2)\frac{x\,dx}{(p^2+x^2)^2}=\frac{\pi}{2p^2(p^2-q^2)}\left\{\frac{1}{2}q(p-q)+pql2+\right.$

$\left.+(p^2+pq-q^2)lp-p^2l(p+q)\right\}$ V. T. 136, N. 13 et T. 249, N. 10.

15) $\int Arctg\,x.l\left(\frac{1+x}{\sqrt{x}}\right).\frac{dx}{1+x^2}=\frac{1}{16}\pi^2l2+\frac{\pi}{4}\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ (VIII, 421).

1) $\int_1^\infty Arctg\, x\,.\, lx \frac{dx}{x^2} = \frac{\pi}{4} + \frac{1}{2} l2 + \frac{1}{48}\pi^2$ V. T. 339, N. 4.

2) $\int_1^\infty Arccot\, x\,.\, lx \frac{dx}{x^2} = \frac{\pi}{4} - \frac{1}{2} l2 - \frac{1}{48}\pi^2$ V. T. 339, N. 3.

3) $\int_1^\infty Arccot\, x\,.(lx)^2.(3 - lx)\frac{dx}{x^2} = \frac{7}{1920}\pi^4$ V. T. 109, N. 9.

4) $\int_1^\infty Arccot\, x\,.(lx)^4.(5 - lx)\frac{dx}{x} = \frac{31}{16128}\pi^6$ V. T. 109, N. 20.

5) $\int_1^\infty Arccot\, x\,.(lx)^{a-1}.(a - lx)\frac{dx}{x} = \frac{1^{a/1}}{2^{a+1}} \sum_0^\infty \frac{(-1)^n}{(n+1)^{a+1}}$ V. T. 110, N. 3.

6) $\int_0^{\sqrt{\frac{1}{2}}} (Arcsin\, x)^{p-1}.\, lx \frac{dx}{\sqrt{1-x^2}} = \frac{1}{2p}\left(\frac{\pi}{4}\right)^p \left\{ -l2 - 2 + \sum_1^\infty \frac{4}{p+2m} \sum_1^\infty \frac{1}{(4n)^{2m}} \right\}$
V. T. 254, N. 12.

7) $\int_{\sqrt{\frac{1}{2}}}^1 (Arccos\, x)^{p-1}\; l(1-x^2)\frac{dx}{\sqrt{1-x^2}} = \frac{1}{p}\left(\frac{\pi}{4}\right)^p \left\{ l2 - 2 + \sum_1^\infty \frac{4}{p+2m} \sum_1^\infty \frac{1}{(4n)^{2m}} \right\}$
V. T. 254, N. 14.

F. Algébrique;
Logarithme;
Autre Fonction.

TABLE 444.

Lim. diverses.

1) $\int_0^1 li(x).\left(l\frac{1}{x}\right)^{p-1}\frac{dx}{x} = -\frac{1}{p}\Gamma(p)\; [0 \leqq p \leqq 1]$ (VIII, 542).

2) $\int_0^1 li(x).\left(l\frac{1}{x}\right)^{p-1}\frac{dx}{x^2} = -\pi\, Cosec\, p\pi\,.\,\Gamma(p)\; [0 \leqq p \leqq 1]$ V. T. 400, N. 2.

3) $\int_0^1 li(x)\frac{x^{p-1}}{\sqrt{l\frac{1}{x}}}dx = -2\sqrt{\frac{\pi}{p}}\,.\, l\{\sqrt{p} + \sqrt{1+p}\}\; [p > 0]$ V. T. 283, N. 5.

4) $\int_0^1 li(x)\frac{dx}{x^{p+1}\sqrt{l\frac{1}{x}}} = -2\sqrt{\frac{\pi}{p}}\,.\, Arcsin(\sqrt{p})\; [p < 1]$ V. T. 283, N. 6.

5) $\int_0^1 li(x).(lx)^{p-1}\frac{dx}{x^2} = -\pi\, Cot\, p\pi\,.\,\Gamma(p)$ V. T. 400, N. 1.

F. Algébr. rat. fract. à dén. mon.;
Circ. Directe ration.; TABLE 445. Lim. 0 et ∞.
Circ. Inverse.

1) $\int Arctg \frac{x}{q} . Cos\, px \frac{dx}{x} = -\frac{\pi}{2} li\,(e^{-pq})$ (VIII, 358).

2) $\int Arctg \left\{ \frac{q \mp \frac{1}{q}}{1 \pm x^2} x \right\} . Cos\, x \frac{dx}{x} = \frac{\pi}{2} \left\{ \pm li(e^{-q}) + li\left(e^{-\frac{1}{q}}\right) \right\}$ (VIII, 358).

3) $\int Arctg \left(\frac{2p\, Sin\, x}{1-p^2} \right) \frac{dx}{x} = \frac{\pi}{2} l \frac{1+p}{1-p}\, [p^2 < 1]$

4) $\int Arctg \left(\frac{p\, Sin\, x}{1+p\, Cos\, x} \right) \frac{dx}{x} = \frac{1}{2} \pi\, l(1+p)\, [p^2 < 1]$ Sur 3) et 4) voyez Bronwin, Mathem. I. 197.

5) $\int Arctg \left(\frac{2p\, Cos^2 x}{1-p^2\, Cos^2 x} \right) \frac{Sin\, x}{q^2 Sin^2 x + r^2 Cos^2 x} \frac{dx}{x} = \frac{1}{r^2} Arctg \left(\frac{pq}{q+r} \right)$ (VIII, 414).

6) $\int Arctg \left(\frac{2p\, Cos^2 x}{1-p^2\, Cos^2 x} \right) \frac{Tg\, x}{q^2 Sin^2 x + r^2 Cos^2 x} \frac{dx}{x} = \frac{1}{r^2} Arctg \left(\frac{pq}{q+r} \right)$ (VIII, 414).

7) $\int Arctg \left(\frac{2p\, Cos^2 2x}{1-p^2\, Cos^2 2x} \right) \frac{Tg\, x}{q^2 Sin^2 2x + r^2 Cos^2 2x} \frac{dx}{x} = \frac{1}{r^2} Arctg \left(\frac{pq}{q+r} \right)$ (VIII, 415).

8) $\int Arctg \left(\frac{2p\, Sin^2 x}{1-p^2\, Sin^2 x} \right) \frac{Sin\, x}{q^2 Sin^2 x + r^2 Cos^2 x} \frac{dx}{x} = \frac{1}{q^2} Arctg \left(\frac{pr}{q+r} \right)$ (VIII, 415).

9) $\int Arctg \left(\frac{2p\, Sin^2 x}{1-p^2\, Sin^2 x} \right) \frac{Tg\, x}{q^2 Sin^2 x + r^2 Cos^2 x} \frac{dx}{x} = \frac{1}{q^2} Arctg \left(\frac{pr}{q+r} \right)$ (VIII, 415).

10) $\int Arctg \left(\frac{2p\, Sin^2 2x}{1-p^2\, Sin^2 2x} \right) \frac{Tg\, x}{q^2 Sin^2 2x + r^2 Cos^2 2x} \frac{dx}{x} = \frac{1}{q^2} Arctg \left(\frac{pr}{q+r} \right)$ (VIII, 415).

F. Algébr. rat. fract. à dén. binôme;
Circ. Directe ration.; TABLE 446. Lim. 0 et ∞.
Circ. Inverse; $[r^2 < 1]$.

1) $\int Arctg(rx) . Sin\, px \frac{dx}{q^2+x^2} = \frac{\pi}{4q} e^{-pq} \left\{ \frac{1}{2} l \left(\frac{1+qr}{1-qr} \right)^2 + Ei\left(pq - \frac{p}{r} \right) \right\} - \frac{\pi}{4q} e^{pq}\, Ei\left(-pq - \frac{p}{r} \right)$ (VIII, 453).

2) $\int Arctg \left(\frac{x}{q} \right) . Sin\, px \frac{dx}{q^2+x^2} = \frac{\pi}{4q} e^{-pq} \{ A + l(2pq) \} - \frac{\pi}{4q} e^{pq}\, Ei(-2pq)$ (VIII, 454).

3) $\int Arctg(rx) . Cos\, px \frac{x\, dx}{q^2+x^2} = \frac{\pi}{4} e^{-pq} \left\{ \frac{1}{2} l \left(\frac{1-qr}{1+qr} \right)^2 - Ei\left(pq - \frac{p}{r} \right) \right\} - \frac{\pi}{4} e^{pq}\, Ei\left(-pq - \frac{p}{r} \right)$ (VIII, 454).

4) $\int Arctg\left(\frac{x}{q}\right).Cos\,px \frac{x\,dx}{q^2+x^2} = -\frac{\pi}{4} e^{-pq}\left\{A + l(2pq)\right\} - \frac{\pi}{4} e^{pq}\,Ei(-2pq)$ (VIII, 454).

5) $\int Arctg\,(Tg\,x)\,\frac{x\,dx}{q^2+x^2} = \frac{\pi}{2}\,l\,\frac{e^{2q}+1}{e^{2q}}$ (IV, 555).

6) $\int Arctg\,(Cot\,x)\,\frac{x\,dx}{q^2+x^2} = \frac{\pi}{2}\,l\,\frac{e^{2q}}{e^{2q}-1}$ (IV, 555).

7) $\int Arctg\left(\frac{2p\,Cos\,x}{1-p^2}\right)\frac{dx}{q^2+x^2} = \frac{\pi}{q}\,Arctg\,(p\,e^{-q})$ Bronwin, Mathem. 1. 197.

8) $\int Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right)\frac{x\,dx}{q^2+x^2} = \frac{\pi}{2}\,l(1+re^{-qs})$ (VIII, 499).

9) $\int Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right).Sin\,px\frac{dx}{q^2+x^2} = \frac{\pi}{4q}(e^{pq}-e^{-pq})\,l(1+re^{-qs}) -$
$- \frac{\pi}{4q}e^{pq}\sum_1^d\frac{(-r)^n}{n}e^{-nqs} + \frac{\pi}{4q}e^{-pq}\sum_0^d\frac{(-r)^n}{n}e^{nqs}$ (VIII, 499).

10) $\int Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right).Cos\,px\frac{x\,dx}{q^2+x^2} = \frac{\pi}{4}(e^{pq}+e^{-pq})\,l(1+re^{-qs}) - \frac{\pi}{4}e^{pq}\sum_1^d\frac{(-r)^n}{n}e^{-nqs} -$
$- \frac{\pi}{4}e^{-pq}\sum_1^d\frac{(-r)^n}{n}e^{nqs}$ $\left[\frac{p}{s}\text{ fraction.}\right]$, $= \frac{\pi}{4}(e^{pq}+e^{-pq})\,l(1+re^{-qs}) - \frac{\pi}{4}e^{pq}\sum_1^{d-1}\frac{(-r)^n}{n}e^{-nqs} -$
$- \frac{\pi}{4}e^{-pq}\sum_1^d\frac{(-r)^n}{n}e^{nqs}$ $\left[\frac{p}{s}\text{ entier}\right]$ $\left[\text{où } d = \mathcal{E}\frac{p}{s}\right]$ (VIII, 499).

11) $\int Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right).Sin^{2a}x\frac{x\,dx}{q^2+x^2} = \frac{(-1)^a\pi}{2^{2a+1}}(e^q-e^{-q})^{2a}\,l(1+re^{-qs})$ $[s > 2a]$, $=$
$= \frac{(-1)^a\pi}{2^{2a+1}}\left\{(e^q-e^{-q})^{2a}\,l(1+re^{-qs}) - r\right\}$ $[s = 2a]$ (V, 112).

12) $\int Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right).Sin\,px\,.\,Sin^{2a+1}x\frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}\pi}{2^{2a+3}}(e^q-e^{-q})^{2a+1}$
$(e^{pq}-e^{-pq})\,l(1+re^{-qs})$ $[p < s-2a-1]$, $= \frac{(-1)^{a-1}\pi}{2^{2a+3}}\left\{(e^q-e^{-q})^{2a+1}\right.$
$\left.(e^{pq}-e^{-pq})\,l(1+re^{-qs}) - r\right\}$ $[p = s-2a-1]$ (V, 115).

13) $\int Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right).Sin\,px\,.\,Cos^a x\frac{dx}{q^2+x^2} = \frac{\pi}{2^{a+2}q}(e^q+e^{-q})^a(e^{pq}-e^{-pq})\,l(1+re^{-qs})$
$[p \leqq s-a]$ (V, 113).

14) $\int Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right).Cos\,px.Sin^{2a}x\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+2}}(e^q-e^{-q})^{2a}(e^{pq}+e^{-pq})\,l(1+re^{-qs})$

$[p<s-2a],=\frac{(-1)^a\pi}{2^{2a+2}}\left\{(e^q-e^{-q})^{2a}(e^{pq}+e^{-pq})\,l(1+re^{-qs})-r\right\}[p=s-2a]$ (V, 113)

15) $\int Arctg\left(\frac{r^2\,Sin\,ax}{1-r^2\,Cos\,ax}\right).Sin^{2a}x\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+1}}(e^q-e^{-q})^{2a}\,l(1-r^2e^{-aq})$ (V, 114).

16) $\int Arctg\left(\frac{r^2\,Sin\,sx}{1-r^2\,Cos\,sx}\right).Sin\,px.Sin^{2a+1}x\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+2}}(e^q-e^{-q})^{2a+1}$

$(e^{pq}-e^{-pq})\,l(1-r^2e^{-qs})\left[p=\frac{1}{2}s-2a-1\right]$ (V, 114).

17) $\int Arctg\left(\frac{r^2\,Sin\,sx}{1-r^2\,Cos\,sx}\right).Cos\,px.Sin^{2a}x\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+2}}(e^q-e^{-q})^{2a}$

$(e^{pq}+e^{-pq})\,l(1-r^2e^{-qs})\left[p=\frac{1}{2}s-2a\right]$ (V, 114).

18) $\int Arctg\left(\frac{2r\,Sin\,sx}{1-r^2}\right).Sin^{2a}x\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+1}}(e^q-e^{-q})^{2a}\,l\frac{1+re^{-qs}}{1-re^{-qs}}[s>2a],=$

$=\frac{(-1)^a\pi}{2^{2a+1}}\left\{(e^q-e^{-q})^{2a}\,l\frac{1+re^{-qs}}{1-re^{-qs}}-2r\right\}[s=2a]$ (V, 114).

19) $\int Arctg\left(\frac{2r\,Sin\,sx}{1-r^2}\right).Sin\,px.Sin^{2a+1}x\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+2}}(e^q-e^{-q})^{2a+1}$

$(e^{pq}-e^{-pq})\,l\frac{1+re^{-qs}}{1-re^{-qs}}[p<s-2a-1],=\frac{(-1)^{a-1}\pi}{2^{2a+2}}\left\{(e^q-e^{-q})^{2a+1}(e^{pq}-e^{-pq})\right.$

$\left.l\frac{1+re^{-qs}}{1-re^{-qs}}-2r\right\}[p=s-2a-1]$ (V, 114).

20) $\int Arctg\left(\frac{2r\,Sin\,sx}{1-r^2}\right).Sin\,px.Cos^a x\frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+2}q}(e^q+e^{-q})^a(e^{pq}-e^{-pq})\,l\frac{1+re^{-qs}}{1-re^{-qs}}$

$[p\leq s-a]$ (V, 114).

21) $\int Arctg\left(\frac{2r\,Sin\,sx}{1-r^2}\right).Cos\,px.Sin^{2a}x\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+2}}(e^q-e^{-q})^{2a}(e^{pq}+e^{-pq})\,l\frac{1+re^{-qs}}{1-re^{-qs}}$

$[p<s-2a],=\frac{(-1)^a\pi}{2^{2a+2}}\left\{(e^q-e^{-q})^{2a}(e^{pq}+e^{-pq})\,l\frac{1+re^{-qs}}{1-re^{-qs}}-2r\right\}[p=s-2a]$

(V, 114).

22) $\int Arctg\left(\frac{r\, Sin\, s x}{1+r\, Cos\, s x}\right) \frac{x\, dx}{q^2-x^2} = -\frac{\pi}{4} l(1+2r\, Cos\, qs+r^2)$ (VIII, 509).

23) $\int Arctg\left(\frac{r\, Sin\, s x}{1+r\, Cos\, s x}\right) . Sin\, p x \frac{dx}{q^2-x^2} = -\frac{\pi}{4q} Sin\, pq . l(1+2r\, Cos\, qs+r^2) -$

$-\frac{\pi}{2q} \sum_1^d \frac{(-r)^n}{n} Sin\{(p-ns)q\}$ (VIII, 509).

24) $\int Arctg\left(\frac{r\, Sin\, s x}{1+r\, Cos\, s x}\right) . Cos\, p x \frac{x\, dx}{q^2-x^2} = -\frac{\pi}{4} Cos\, pq . l(1+2r\, Cos\, qs+r^2) -$

$-\frac{\pi}{2} \sum_1^d \frac{(-r)^n}{n} Cos\{(p-ns)q\} \left[\frac{p}{s} \text{ fraction.}\right], = -\frac{\pi}{4} Cos\, pq . l(1+2r\, Cos\, qs+r^2) -$

$-\frac{\pi}{4d}(-r)^d - \frac{\pi}{2} \sum_1^d \frac{(-r)^n}{n} Cos\{(p-ns)q\} \left[\frac{p}{s} \text{ entier}\right]$ (VIII, 509).

Dans 23) et 24) on a $d = \mathcal{E}\frac{p}{s}$.

25) $\int Arctg\left(\frac{2r\, Cos\, x}{1-r^2}\right) \frac{dx}{q^2-x^2} = \frac{\pi}{4q} l \frac{1-2r\, Sin\, q+r^2}{1+2r\, Sin\, q+r^2}$ Bronwin, Mathem. I. 197.

26) $\int Cos^{p-1}\left(Arctg \frac{x}{q}\right) . Sin\left\{(p+1) Arctg \frac{x}{q}\right\} . Sin\, r x \frac{dx}{q^2+x^2} = \frac{\pi q^{p-1} r^p e^{-qr}}{2\Gamma(p+1)}$ V. T. 43, N. 12.

27) $\int Cos^{p-1}\left(Arctg \frac{x}{q}\right) . Cos\left\{(p+1) Arctg \frac{x}{q}\right\} . Cos\, r x \frac{dx}{q^2+x^2} = \frac{\pi q^{p-1} r^p e^{-qr}}{2\Gamma(p+1)}$ V. T. 43, N. 13.

F. Alg. rat. fract. à dén. monôme;
Circ. Dir. irrat. à fact. $\sqrt{1-p^2 Sin^2 x}$;
Circ. Inv. $Arctg\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\}$; $[p^2 < 1]$.

TABLE 447.

Lim. 0 et ∞.

1) $\int Arctg\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} . Sin\, x . \sqrt{1-p^2 Sin^2 x} \frac{dx}{x} = \frac{\pi}{2} E(p,\lambda) - \frac{\pi}{2} Cot\lambda . \{1-\sqrt{1-p^2 Sin^2 \lambda}\}$
(VIII, 413).

2) $\int Arctg\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} . Tg\, x . \sqrt{1-p^2 Sin^2 x} \frac{dx}{x} = \frac{\pi}{2} E(p,\lambda) - \frac{\pi}{2} Cot\lambda . \{1-\sqrt{1-p^2 Sin^2 \lambda}\}$
(VIII, 413).

3) $\int Arctg\{Tg\lambda . \sqrt{1-p^2 Sin^2 2x}\} . Tg\, x . \sqrt{1-p^2 Sin^2 2x} \frac{dx}{x} = \frac{\pi}{2} E(p,\lambda) - \frac{\pi}{2} Cot\lambda . \{1-\sqrt{1-p^2 Sin^2 \lambda}\}$
(VIII, 413).

4) $\int Arctg\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{Sin\, x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{\pi}{2} F(p,\lambda)$ (VIII, 406).

5) $$\int Arctg\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin\,x.Cos\,x}{\sqrt{1-p^2 Sin^2 x}}\frac{dx}{x}=\frac{\pi}{2p^2}\{E(p,\lambda)-(1-p^2)F(p,\lambda)\}-$$
$$-\frac{\pi}{2p^2}Cot\lambda.\{1-\sqrt{1-p^2 Sin^2\lambda}\}$$ (VIII, 406).

6) $$\int Arctg\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin^2 x}{\sqrt{1-p^2 Sin^2 x}}\frac{dx}{x}=\frac{\pi}{2p^2}\{F(p,\lambda)-E(p,\lambda)\}+$$
$$+\frac{\pi}{2p^2}Cot\lambda.\{1-\sqrt{1-p^2 Sin^2\lambda}\}$$ (VIII, 406).

7) $$\int Arctg\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin\,x.Cos^2 x}{\sqrt{1-p^2 Sin^2 x}}\frac{dx}{x}=\frac{\pi}{2p^2}\{E(p,\lambda)-(1-p^2)F(p,\lambda)\}-$$
$$-\frac{\pi}{2p^2}Cot\lambda.\{1-\sqrt{1-p^2 Sin^2\lambda}\}$$ (VIII, 406).

8) $$\int Arctg\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Tg\,x}{\sqrt{1-p^2 Sin^2 x}}\frac{dx}{x}=\frac{\pi}{2}F(p,\lambda)$$ (VIII, 406).

9) $$\int Arctg\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin^2 x.Tg\,x}{\sqrt{1-p^2 Sin^2 x}}\frac{dx}{x}=\frac{\pi}{2p^2}\{F(p,\lambda)-E(p,\lambda)\}+$$
$$+\frac{\pi}{2p^2}Cot\lambda.\{1-\sqrt{1-p^2 Sin^2\lambda}\}$$ (VIII, 406).

10) $$\int Arctg\{Tg\lambda.\sqrt{1-p^2 Sin^2 2x}\}\frac{Sin^3 x.Cos\,x}{\sqrt{1-p^2 Sin^2 2x}}\frac{dx}{x}=\frac{\pi}{8p^2}\{F(p,\lambda)-E(p,\lambda)\}+$$
$$+\frac{\pi}{8p^2}Cot\lambda.\{1-\sqrt{1-p^2 Sin^2\lambda}\}$$ (VIII, 406).

11) $$\int Arctg\{Tg\lambda.\sqrt{1-p^2 Sin^2 2x}\}\frac{Tg\,x}{\sqrt{1-p^2 Sin^2 2x}}\frac{dx}{x}=\frac{\pi}{2}F(p,\lambda)$$ (VIII, 406).

12) $$\int Arctg\{Tg\lambda.\sqrt{1-p^2 Sin^2 2x}\}\frac{Cos^2 2x.Tg\,x}{\sqrt{1-p^2 Sin^2 2x}}\frac{dx}{x}=\frac{\pi}{2p^2}\{E(p,\lambda)-(1-p^2)F(p,\lambda)\}-$$
$$-\frac{\pi}{2p^2}Cot\lambda.\{1-\sqrt{1-p^2 Sin^2\lambda}\}$$ (VIII, 406).

13) $$\int Arctg\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin\,x}{\sqrt{1-p^2 Sin^2 x}^3}\frac{dx}{x}=\frac{1}{2}\frac{\pi}{1-p^2}E(p,\lambda)-$$
$$-\frac{\pi\,Tg\lambda}{2(1-p^2)}\{\sqrt{1-p^2 Sin^2\lambda}-\sqrt{1-p^2}\}$$ (VIII, 407).

14) $\int Arctg\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin\,x.\,Cos\,x}{\sqrt{1-p^2 Sin^2 x}^3}\frac{dx}{x}=\frac{\pi}{2p^2}\{F(p,\lambda)-E(p,\lambda)\}+$
$+\frac{\pi}{2p^2}Tg\lambda.\{\sqrt{1-p^2 Sin^2\lambda}-\sqrt{1-p^2}\}$ (VIII, 407).

15) $\int Arctg\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin^3 x}{\sqrt{1-p^2 Sin^2 x}^3}\frac{dx}{x}=\frac{\pi}{2p^2(1-p^2)}\{E(p,\lambda)-(1-p^2)F(p,\lambda)\}-$
$-\frac{\pi}{2p^2(1-p^2)}Tg\lambda.\{\sqrt{1-p^2 Sin^2\lambda}-\sqrt{1-p^2}\}$ (VIII, 407).

16) $\int Arctg\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin\,x.\,Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^3}\frac{dx}{x}=\frac{\pi}{2p^2}\{F(p,\lambda)-E(p,\lambda)\}+$
$+\frac{\pi}{2p^2}Tg\lambda.\{\sqrt{1-p^2 Sin^2\lambda}-\sqrt{1-p^2}\}$ (VIII, 407).

17) $\int Arctg\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Tg\,x}{\sqrt{1-p^2 Sin^2 x}^3}\frac{dx}{x}=\frac{1}{2}\frac{\pi}{1-p^2}E(p,\lambda)-$
$-\frac{\pi}{2(1-p^2)}Tg\lambda.\{\sqrt{1-p^2 Sin^2\lambda}-\sqrt{1-p^2}\}$ (VIII, 407).

18) $\int Arctg\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin^2 x.\,Tg\,x}{\sqrt{1-p^2 Sin^2 x}^3}\frac{dx}{x}=\frac{\pi}{2p^2(1-p^2)}\{E(p,\lambda)-(1-p^2)F(p,\lambda)\}-$
$-\frac{\pi}{2p^2(1-p^2)}Tg\lambda.\{\sqrt{1-p^2 Sin^2\lambda}-\sqrt{1-p^2}\}$ (VIII, 407).

19) $\int Arctg\{Tg\lambda.\sqrt{1-p^2 Sin^2 2x}\}\frac{Sin^3 x.\,Cos\,x}{\sqrt{1-p^2 Sin^2 2x}^3}\frac{dx}{x}=\frac{\pi}{8p^2(1-p^2)}\{E(p,\lambda)-$
$-(1-p^2)F(p,\lambda)\}-\frac{\pi}{8p^2(1-p^2)}Tg\lambda.\{\sqrt{1-p^2 Sin^2\lambda}-\sqrt{1-p^2}\}$ (VIII, 407).

20) $\int Arctg\{Tg\lambda.\sqrt{1-p^2 Sin^2 2x}\}\frac{Tg\,x}{\sqrt{1-p^2 Sin^2 2x}^3}\frac{dx}{x}=\frac{1}{2}\frac{\pi}{1-p^2}E(p,\lambda)-$
$-\frac{\pi}{2(1-p^2)}Tg\lambda.\{\sqrt{1-p^2 Sin^2\lambda}-\sqrt{1-p^2}\}$ (VIII, 407).

21) $\int Arctg\{Tg\lambda.\sqrt{1-p^2 Sin^2 2x}\}\frac{Cos^2 2x.\,Tg\,x}{\sqrt{1-p^2 Sin^2 2x}^3}\frac{dx}{x}=\frac{\pi}{2p^2}\{F(p,\lambda)-E(p,\lambda)\}+$
$+\frac{\pi}{2p^2}Tg\lambda.\{\sqrt{1-p^2 Sin^2\lambda}-\sqrt{1-p^2}\}$ (VIII, 407).

1) $\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}.Sin x.\sqrt{1-p^2 Sin^2 x}\frac{dx}{x}=\frac{\pi}{2}\mathrm{E}\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-$
$-\frac{\pi}{2}Cot\lambda.\left\{\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}-1\right\}$ (VIII, 413).

2) $\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}.Tg x.\sqrt{1-p^2 Sin^2 x}\frac{dx}{x}=\frac{\pi}{2}\mathrm{E}\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-$
$-\frac{\pi}{2}Cot\lambda.\left\{\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}-1\right\}$ (VIII, 413).

3) $\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 2x}\}.Tg x.\sqrt{1-p^2 Sin^2 2x}\frac{dx}{x}=\frac{\pi}{2}\mathrm{E}\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-$
$-\frac{\pi}{2}Cot\lambda.\left\{\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}-1\right\}$ (VIII, 413).

4) $\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin x}{\sqrt{1-p^2 Sin^2 x}}\frac{dx}{x}=\frac{\pi}{2}\mathrm{F}\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}$
(VIII, 409).

5) $\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin x.Cos x}{\sqrt{1-p^2 Sin^2 x}}\frac{dx}{x}=\frac{\pi}{2p^2}\left\{\mathrm{E}\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-\right.$
$\left.-(1-p^2)\mathrm{F}\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}\right\}-\frac{\pi}{2p^2}Cot\lambda.\left\{\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}-1\right\}$ (VIII, 410).

6) $\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin^3 x}{\sqrt{1-p^2 Sin^2 x}}\frac{dx}{x}=\frac{\pi}{2p^2}\left\{\mathrm{F}\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-\right.$
$\left.-\mathrm{E}\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}\right\}+\frac{\pi}{2p^2}Cot\lambda.\left\{\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}-1\right\}$ (VIII, 409).

7) $\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin x.Cos^2 x}{\sqrt{1-p^2 Sin^2 x}}\frac{dx}{x}=\frac{\pi}{2p^2}\left\{\mathrm{E}\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-\right.$
$\left.-(1-p^2)\mathrm{F}\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}\right\}-\frac{\pi}{2p^2}Cot\lambda.\left\{\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}-1\right\}$ (VIII, 410).

8) $\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Tg x}{\sqrt{1-p^2 Sin^2 x}}\frac{dx}{x}=\frac{\pi}{2}\mathrm{F}\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}$
(VIII, 410).

9) $\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin^2 x.Tg x}{\sqrt{1-p^2 Sin^2 x}}\frac{dx}{x}=\frac{\pi}{2p^2}\left\{\mathrm{F}\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-\right.$
$\left.-\mathrm{E}\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}\right\}+\frac{\pi}{2p^2}Cot\lambda.\left\{\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}-1\right\}$ (VIII, 409).

10) $$\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 2x}\}\frac{Sin^2 x.Cos x}{\sqrt{1-p^2 Sin^2 2x}}\frac{dx}{x}=\frac{\pi}{8p^2}\Big\{F\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-$$
$$-E\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}\Big\}+\frac{\pi}{8p^2}Cot\lambda.\Big\{\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}-1\Big\}$$ (VIII, 409).

11) $$\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 2x}\}\frac{Tg x}{\sqrt{1-p^2 Sin^2 2x}}\frac{dx}{x}=\frac{\pi}{2}F\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}$$
(VIII, 410).

12) $$\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 2x}\}\frac{Cos^2 2x.Tg x}{\sqrt{1-p^2 Sin^2 2x}}\frac{dx}{x}=\frac{\pi}{2p^2}\Big\{E\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-$$
$$-(1-p^2)F\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}\Big\}-\frac{\pi}{2p^2}Cot\lambda.\Big\{\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}-1\Big\}$$ (VIII, 410).

13) $$\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin x}{\sqrt{1-p^2 Sin^2 x}^3}\frac{dx}{x}=\frac{1}{2}\frac{\pi}{1-p^2}E\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-$$
$$-\frac{\pi}{2\sqrt{1-p^2}}Tg\lambda.\Big\{1-\sqrt{\frac{1-p^2}{1-p^2 Sin^2\lambda}}\Big\}$$ (VIII, 410).

14) $$\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin x.Cos x}{\sqrt{1-p^2 Sin^2 x}^3}\frac{dx}{x}=\frac{\pi}{2p^2}\Big\{F\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-$$
$$-E\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}\Big\}+\frac{\pi\sqrt{1-p^2}}{2p^2}Tg\lambda.\Big\{1-\sqrt{\frac{1-p^2}{1-p^2 Sin^2\lambda}}\Big\}$$ (VIII, 411).

15) $$\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin^2 x}{\sqrt{1-p^2 Sin^2 x}^3}\frac{dx}{x}=\frac{\pi}{2p^2(1-p^2)}$$
$$\Big\{E\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-(1-p^2)F\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}\Big\}-$$
$$-\frac{\pi}{2p^2\sqrt{1-p^2})}Tg\lambda.\Big\{1-\sqrt{\frac{1-p^2}{1-p^2 Sin^2\lambda}}\Big\}$$ (VIII, 410).

16) $$\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin x.Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^3}\frac{dx}{x}=\frac{\pi}{2p^2}\Big\{F\{p, Arccot[Tg.\lambda\sqrt{1-p^2}]\}-$$
$$-E\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}\Big\}+\frac{\pi\sqrt{1-p^2}}{2p^2}Tg\lambda.\Big\{1-\sqrt{\frac{1-p^2}{1-p^2 Sin^2\lambda}}\Big\}$$ (VIII, 411).

17) $$\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Tg x}{\sqrt{1-p^2 Sin^2 x}^3}\frac{dx}{x}=\frac{1}{2}\frac{\pi}{1-p^2}E\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-$$
$$-\frac{\pi}{2\sqrt{1-p^2}}Tg\lambda.\Big\{1-\sqrt{\frac{1-p^2}{1-p^2 Sin^2\lambda}}\Big\}$$ (VIII, 410).

18) $$\int Arccot\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{Sin^2 x . Tg x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x} = \frac{\pi}{2p^2(1-p^2)} \Big\{ E\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - (1-p^2) F\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} \Big\} - \frac{\pi \, Tg\lambda}{2p^2 \sqrt{1-p^2}} \left\{ 1 - \sqrt{\frac{1-p^2}{1-p^2 Sin^2 \lambda}} \right\}$$ (VIII, 410).

19) $$\int Arccot\{Tg\lambda . \sqrt{1-p^2 Sin^2 2x}\} \frac{Sin^2 x . Cos x}{\sqrt{1-p^2 Sin^2 2x}^3} \frac{dx}{x} = \frac{\pi}{8p^2(1-p^2)} \Big\{ E\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - (1-p^2) F\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} \Big\} - \frac{\pi \, Tg\lambda}{8p^2 \sqrt{1-p^2}} \left\{ 1 - \sqrt{\frac{1-p^2}{1-p^2 Sin^2 \lambda}} \right\}$$ (VIII, 410).

20) $$\int Arccot\{Tg\lambda . \sqrt{1-p^2 Sin^2 2x}\} \frac{Tg x}{\sqrt{1-p^2 Sin^2 2x}^3} \frac{dx}{x} = \frac{1}{2} \frac{\pi}{1-p^2} E\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - \frac{\pi \, Tg\lambda}{2\sqrt{1-p^2}} \left\{ 1 - \sqrt{\frac{1-p^2}{1-p^2 Sin^2 \lambda}} \right\}$$ (VIII, 410).

21) $$\int Arccot\{Tg\lambda . \sqrt{1-p^2 Sin^2 2x}\} \frac{Cos^2 2x . Tg x}{\sqrt{1-p^2 Sin^2 2x}^3} \frac{dx}{x} = \frac{\pi}{2p^2} \Big\{ F\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - E\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} \Big\} + \frac{\pi \sqrt{1-p^2}}{2p^2} Tg\lambda . \left\{ 1 - \sqrt{\frac{1-p^2}{1-p^2 Sin^2 \lambda}} \right\}$$ (VIII, 411).

F. Alg. rat. fract. à dén. monôme;
Circ. Dir. irrat. à fact. $\sqrt{1-p^2 \, Cos^2 x}$;
Circ. Inv. $Arctg\{Tg\lambda . \sqrt{1-p^2 \, Cos^2 x}\}$; $[p^2 < 1]$.

TABLE 449. Lim. 0 et ∞.

1) $$\int Arctg\{Tg\lambda . \sqrt{1-p^2 Cos^2 x}\} . Sin x . \sqrt{1-p^2 Cos^2 x} \frac{dx}{x} = \frac{\pi}{2} E(p, \lambda) - \frac{\pi}{2} Cot\lambda . \{1 - \sqrt{1-p^2 Sin^2 \lambda}\}$$ (VIII, 418).

2) $$\int Arctg\{Tg\lambda . \sqrt{1-p^2 Cos^2 x}\} . Tg x . \sqrt{1-p^2 Cos^2 x} \frac{dx}{x} = \frac{\pi}{2} E(p, \lambda) - \frac{\pi}{2} Cot\lambda . \{1 - \sqrt{1-p^2 Sin^2 \lambda}\}$$ (VIII, 418).

3) $$\int Arctg\{Tg\lambda . \sqrt{1-p^2 Cos^2 2x}\} . Tg x . \sqrt{1-p^2 Cos^2 2x} \frac{dx}{x} = \frac{\pi}{2} E(p, \lambda) - \frac{\pi}{2} Cot\lambda . \{1 - \sqrt{1-p^2 Sin^2 \lambda}\}$$ (VIII, 418).

F. Alg. rat. fract. à dén. monôme;
Circ. Dir. irrat. à fact. $\sqrt{1-p^2 \, Cos^2 x}$;
Circ. Inv. $Arctg. \{Tg\lambda . \sqrt{1-p^2 \, Cos^2 x}\}$; $[p^2 < 1]$.

4) $\int Arctg \{Tg\lambda . \sqrt{1-p^2 \, Cos^2 x}\} \frac{Sin \, x}{\sqrt{1-p^2 \, Cos^2 x}} \frac{dx}{x} = \frac{\pi}{2} F(p,\lambda)$ (VIII, 408).

5) $\int Arctg \{Tg\lambda . \sqrt{1-p^2 \, Cos^2 x}\} \frac{Sin \, x . Cos \, x}{\sqrt{1-p^2 \, Cos^2 x}} \frac{dx}{x} = \frac{\pi}{2p^2} \{F(p,\lambda) - E(p,\lambda)\} +$

$+ \frac{\pi}{2p^2} Cot\lambda . \{1 - \sqrt{1-p^2 \, Sin^2 \lambda}\}$ (VIII, 408).

6) $\int Arctg \{Tg\lambda . \sqrt{1-p^2 \, Cos^2 x}\} \frac{Sin^3 x}{\sqrt{1-p^2 \, Cos^2 x}} \frac{dx}{x} = \frac{\pi}{2p^2} \{E(p,\lambda) - (1-p^2) F(p,\lambda)\} -$

$- \frac{\pi}{2p^2} Cot\lambda . \{1 - \sqrt{1-p^2 \, Sin^2 \lambda}\}$ (VIII, 408).

7) $\int Arctg \{Tg\lambda . \sqrt{1-p^2 \, Cos^2 x}\} \frac{Sin \, x . Cos^2 x}{\sqrt{1-p^2 \, Cos^2 x}} \frac{dx}{x} = \frac{\pi}{2p^2} \{F(p,\lambda) - E(p,\lambda)\} +$

$+ \frac{\pi}{2p^2} Cot\lambda . \{1 - \sqrt{1-p^2 \, Sin^2 \lambda}\}$ (VIII, 408).

8) $\int Arctg \{Tg\lambda . \sqrt{1-p^2 \, Cos^2 x}\} \frac{Tg \, x}{\sqrt{1-p^2 \, Cos^2 x}} \frac{dx}{x} = \frac{\pi}{2} F(p,\lambda)$ (VIII, 408).

9) $\int Arctg \{Tg\lambda . \sqrt{1-p^2 \, Cos^2 x}\} \frac{Sin^2 x . Tg \, x}{\sqrt{1-p^2 \, Cos^2 x}} \frac{dx}{x} = \frac{\pi}{2p^2} \{E(p,\lambda) - (1-p^2) F(p,\lambda)\} -$

$- \frac{\pi}{2p^2} Cot\lambda . \{1 - \sqrt{1-p^2 \, Sin^2 \lambda}\}$ (VIII, 408).

10) $\int Arctg \{Tg\lambda . \sqrt{1-p^2 \, Cos^2 2x}\} \frac{Sin^3 x . Cos \, x}{\sqrt{1-p^2 \, Cos^2 2x}} \frac{dx}{x} = \frac{\pi}{8p^2} \{E(p,\lambda) - (1-p^2) F(p,\lambda)\} -$

$- \frac{\pi}{8p^2} Cot\lambda . \{1 - \sqrt{1-p^2 \, Sin^2 \lambda}\}$ (VIII, 408).

11) $\int Arctg \{Tg\lambda . \sqrt{1-p^2 \, Cos^2 2x}\} \frac{Tg \, x}{\sqrt{1-p^2 \, Cos^2 2x}} \frac{dx}{x} = \frac{\pi}{2} F(p,\lambda)$ (VIII, 408).

12) $\int Arctg \{Tg\lambda . \sqrt{1-p^2 \, Cos^2 2x}\} \frac{Cos^2 2x . Tg \, x}{\sqrt{1-p^2 \, Cos^2 2x}} \frac{dx}{x} = \frac{\pi}{2p^2} \{F(p,\lambda) - E(p,\lambda)\} +$

$+ \frac{\pi}{2p^2} Cot\lambda . \{1 - \sqrt{1-p^2 \, Sin^2 \lambda}\}$ (VIII, 408).

13) $\int Arctg \{Tg\lambda . \sqrt{1-p^2 \, Cos^2 x}\} \frac{Sin \, x}{\sqrt{1-p^2 \, Cos^2 x}^3} \frac{dx}{x} = \frac{1}{2} \frac{\pi}{1-p^2} E(p,\lambda) -$

$- \frac{\pi \, Tg\lambda}{2\sqrt{1-p^2}} \left\{ \sqrt{\frac{1-p^2 \, Sin^2 \lambda}{1-p^2}} - 1 \right\}$ (VIII, 409).

14) $$\int Arctg\{Tg\lambda.\sqrt{1-p^2 Cos^2 x}\}\frac{Sin\, x.Cos\, x}{\sqrt{1-p^2 Cos^2 x}^3}\frac{dx}{x}=\frac{\pi}{2p^2(1-p^2)}\{E(p,\lambda)-(1-p^2)F(p,\lambda)\}-$$
$$-\frac{\pi\, Tg\lambda}{2p^2\sqrt{1-p^2}}\left\{\sqrt{\frac{1-p^2 Sin^2\lambda}{1-p^2}}-1\right\}$$ (VIII, 409).

15) $$\int Arctg\{Tg\lambda.\sqrt{1-p^2 Cos^2 x}\}\frac{Sin^2 x}{\sqrt{1-p^2 Cos^2 x}^3}\frac{dx}{x}=\frac{\pi}{2p^2}\{F(p,\lambda)-E(p,\lambda)\}+$$
$$+\frac{\pi}{2p^2}Tg\lambda.\sqrt{1-p^2}\left\{\sqrt{\frac{1-p^2 Sin^2\lambda}{1-p^2}}-1\right\}$$ (VIII, 408).

16) $$\int Arctg\{Tg\lambda.\sqrt{1-p^2 Cos^2 x}\}\frac{Sin\, x.Cos^2 x}{\sqrt{1-p^2 Cos^2 x}^3}\frac{dx}{x}=\frac{\pi}{2p^2(1-p^2)}\{E(p,\lambda)-(1-p^2)F(p,\lambda)\}-$$
$$-\frac{\pi\, Tg\lambda}{2p^2\sqrt{1-p^2}}\left\{\sqrt{\frac{1-p^2 Sin^2\lambda}{1-p^2}}-1\right\}$$ (VIII, 409).

17) $$\int Arctg\{Tg\lambda.\sqrt{1-p^2 Cos^2 x}\}\frac{Tg\, x}{\sqrt{1-p^2 Cos^2 x}^3}\frac{dx}{x}=\frac{1}{2}\frac{\pi}{1-p^2}E(p,\lambda)-$$
$$-\frac{\pi\, Tg\lambda}{2\sqrt{1-p^2}}\left\{\sqrt{\frac{1-p^2 Sin^2\lambda}{1-p^2}}-1\right\}$$ (VIII, 409).

18) $$\int Arctg\{Tg\lambda.\sqrt{1-p^2 Cos^2 x}\}\frac{Sin^2 x.Tg\, x}{\sqrt{1-p^2 Cos^2 x}^3}\frac{dx}{x}=\frac{\pi}{2p^2}\{F(p,\lambda)-E(p,\lambda)\}+$$
$$+\frac{\pi}{2p^2}Tg\lambda.\sqrt{1-p^2}\left\{\sqrt{\frac{1-p^2 Sin^2\lambda}{1-p^2}}-1\right\}$$ (VIII, 408).

19) $$\int Arctg\{Tg\lambda.\sqrt{1-p^2 Cos^2 2x}\}\frac{Sin^2 x.Cos\, x}{\sqrt{1-p^2 Cos^2 2x}^3}\frac{dx}{x}=\frac{\pi}{8p^2}\{F(p,\lambda)-E(p,\lambda)\}+$$
$$+\frac{\pi}{8p^2}Tg\lambda.\sqrt{1-p^2}\left\{\sqrt{\frac{1-p^2 Sin^2\lambda}{1-p^2}}-1\right\}$$ (VIII, 408).

20) $$\int Arctg\{Tg\lambda.\sqrt{1-p^2 Cos^2 2x}\}\frac{Tg\, x}{\sqrt{1-p^2 Cos^2 2x}^3}\frac{dx}{x}=\frac{1}{2}\frac{\pi}{1-p^2}E(p,\lambda)-$$
$$-\frac{\pi\, Tg\lambda}{2\sqrt{1-p^2}}\left\{\sqrt{\frac{1-p^2 Sin^2\lambda}{1-p^2}}-1\right\}$$ (VIII, 409).

21) $$\int Arctg\{Tg\lambda.\sqrt{1-p^2 Cos^2 2x}\}\frac{Cos^2 2x.Tg\, x}{\sqrt{1-p^2 Cos^2 2x}^3}\frac{dx}{x}=\frac{\pi}{2p^2(1-p^2)}\{E(p,\lambda)-$$
$$-(1-p^2)F(p,\lambda)\}-\frac{\pi\, Tg\lambda}{2p^2\sqrt{1-p^2}}\left\{\sqrt{\frac{1-p^2 Sin^2\lambda}{1-p^2}}-1\right\}$$ (VIII, 409).

1) $\int Arccot\{Tg\lambda . \sqrt{1-p^2 Cos^2 x}\} . Sin x . \sqrt{1-p^2 Cos^2 x} \frac{dx}{x} = \frac{\pi}{2} E\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - \frac{\pi}{2} Cot\lambda . \left\{\frac{1}{\sqrt{1-p^2 Sin^2 \lambda}} - 1\right\}$ (VIII, 414).

2) $\int Arccot\{Tg\lambda . \sqrt{1-p^2 Cos^2 x}\} . Tg x . \sqrt{1-p^2 Cos^2 x} \frac{dx}{x} = \frac{\pi}{2} E\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - \frac{\pi}{2} Cot\lambda . \left\{\frac{1}{\sqrt{1-p^2 Sin^2 \lambda}} - 1\right\}$ (VIII, 414).

3) $\int Arccot\{Tg\lambda . \sqrt{1-p^2 Cos^2 2x}\} . Tg x . \sqrt{1-p^2 Cos^2 2x} \frac{dx}{x} = \frac{\pi}{2} E\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - \frac{\pi}{2} Cot\lambda . \left\{\frac{1}{\sqrt{1-p^2 Sin^2 \lambda}} - 1\right\}$ (VIII, 414).

4) $\int Arccot\{Tg\lambda . \sqrt{1-p^2 Cos^2 x}\} \frac{Sin x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x} = \frac{\pi}{2} F\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\}$ (VIII, 411).

5) $\int Arccot\{Tg\lambda . \sqrt{1-p^2 Cos^2 x}\} \frac{Sin x . Cos x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x} = \frac{\pi}{2p^2} \left\{F\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - E\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\}\right\} + \frac{\pi}{2p^2} Cot\lambda . \left\{\frac{1}{\sqrt{1-p^2 Sin^2 \lambda}} - 1\right\}$ (VIII, 412).

6) $\int Arccot\{Tg\lambda . \sqrt{1-p^2 Cos^2 x}\} \frac{Sin^2 x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x} = \frac{\pi}{2p^2} \left\{E\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - (1-p^2) F\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\}\right\} - \frac{\pi}{2p^2} Cot\lambda . \left\{\frac{1}{\sqrt{1-p^2 Sin^2 \lambda}} - 1\right\}$ (VIII, 411).

7) $\int Arccot\{Tg\lambda . \sqrt{1-p^2 Cos^2 x}\} \frac{Sin x . Cos^2 x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x} = \frac{\pi}{2p^2} \left\{F\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - E\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\}\right\} + \frac{\pi}{2p^2} Cot\lambda . \left\{\frac{1}{\sqrt{1-p^2 Sin^2 \lambda}} - 1\right\}$ (VIII, 412).

8) $\int Arccot\{Tg\lambda . \sqrt{1-p^2 Cos^2 x}\} \frac{Tg x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x} = \frac{\pi}{2} F\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\}$ (VIII, 411).

9) $\int Arccot\{Tg\lambda . \sqrt{1-p^2 Cos^2 x}\} \frac{Sin^2 x . Tg x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x} = \frac{\pi}{2p^2} \left\{E\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - (1-p^2) F\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\}\right\} - \frac{\pi}{2p^2} Cot\lambda . \left\{\frac{1}{\sqrt{1-p^2 Sin^2 \lambda}} - 1\right\}$ (VIII, 411).

10) $$\int Arccot\{Tg\lambda.\sqrt{1-p^2\,Cos^2 2x}\}\frac{Sin^2 x.\,Cos\,x}{\sqrt{1-p^2\,Cos^2 2x}}\frac{dx}{x}=\frac{\pi}{8p^2}\Big\{E\{p,Arccot[Tg\lambda.\sqrt{1-p^2}]\}-(1-p^2)F\{p,Arccot[Tg\lambda.\sqrt{1-p^2}]\}\Big\}-\frac{\pi}{8p^2}Cot\lambda.\Big\{\frac{1}{\sqrt{1-p^2\,Sin^2\lambda}}-1\Big\}$$ (VIII, 411).

11) $$\int Arccot\{Tg\lambda.\sqrt{1-p^2\,Cos^2 2x}\}\frac{Tg\,x}{\sqrt{1-p^2\,Cos^2 2x}}\frac{dx}{x}=\frac{\pi}{2}F\{p,Arccot[Tg\lambda.\sqrt{1-p^2}]\}$$ (VIII, 411).

12) $$\int Arccot\{Tg\lambda.\sqrt{1-p^2\,Cos^2 2x}\}\frac{Cos^2 2x.\,Tg\,x}{\sqrt{1-p^2\,Cos^2 2x}}\frac{dx}{x}=\frac{\pi}{2p^2}\Big\{F\{p,Arccot[Tg\lambda.\sqrt{1-p^2}]\}-E\{p,Arccot[Tg\lambda.\sqrt{1-p^2}]\}\Big\}+\frac{\pi}{2p^2}Cot\lambda.\Big\{\frac{1}{\sqrt{1-p^2\,Sin^2\lambda}}-1\Big\}$$ (VIII, 412).

13) $$\int Arccot\{Tg\lambda.\sqrt{1-p^2\,Cos^2 x}\}\frac{Sin\,x}{\sqrt{1-p^2\,Cos^2 x}^3}\frac{dx}{x}=\frac{1}{2}\frac{\pi}{1-p^2}E\{p,Arccot[Tg\lambda.\sqrt{1-p^2}]\}-\frac{\pi\,Tg\lambda}{2\sqrt{1-p^2}}\Big\{1-\sqrt{\frac{1-p^2}{1-p^2\,Sin^2\lambda}}\Big\}$$ (VIII, 412).

14) $$\int Arccot\{Tg\lambda.\sqrt{1-p^2\,Cos^2 x}\}\frac{Sin\,x.\,Cos\,x}{\sqrt{1-p^2\,Cos^2 x}^3}\frac{dx}{x}=\frac{\pi}{2p^2(1-p^2)}\Big\{E\{p,Arccot[Tg\lambda.\sqrt{1-p^2}]\}-(1-p^2)F\{p,Arccot[Tg\lambda.\sqrt{1-p^2}]\}\Big\}-\frac{\pi\,Tg\lambda}{2p^2\sqrt{1-p^2}}\Big\{1-\sqrt{\frac{1-p^2}{1-p^2\,Sin^2\lambda}}\Big\}$$ (VIII, 413).

15) $$\int Arccot\{Tg\lambda.\sqrt{1-p^2\,Cos^2 x}\}\frac{Sin^3 x}{\sqrt{1-p^2\,Cos^2 x}^3}\frac{dx}{x}=\frac{\pi}{2p^2}\Big\{F\{p,Arccot[Tg\lambda.\sqrt{1-p^2}]\}-E\{p,Arccot[Tg\lambda.\sqrt{1-p^2}]\}\Big\}+\frac{\pi\sqrt{1-p^2}}{2p^2}Tg\lambda.\Big\{1-\sqrt{\frac{1-p^2}{1-p^2\,Sin^2\lambda}}\Big\}$$ (VIII, 412).

16) $$\int Arccot\{Tg\lambda.\sqrt{1-p^2\,Cos^2 x}\}\frac{Sin\,x.\,Cos^2 x}{\sqrt{1-p^2\,Cos^2 x}^3}\frac{dx}{x}=\frac{\pi}{2p^2(1-p^2)}\Big\{E\{p,Arccot[Tg\lambda.\sqrt{1-p^2}]\}-(1-p^2)F\{p,Arccot[Tg\lambda.\sqrt{1-p^2}]\}\Big\}-\frac{\pi\,Tg\lambda}{2p^2\sqrt{1-p^2}}\Big\{1-\sqrt{\frac{1-p^2}{1-p^2\,Sin^2\lambda}}\Big\}$$ (VIII, 413).

17) $$\int Arccot\{Tg\lambda.\sqrt{1-p^2\,Cos^2 x}\}\frac{Tg\,x}{\sqrt{1-p^2\,Cos^2 x}^3}\frac{dx}{x}=\frac{1}{2}\frac{\pi}{1-p^2}E\{p,Arccot[Tg\lambda.\sqrt{1-p^2}]\}-\frac{\pi\,Tg\lambda}{2\sqrt{1-p^2}}\Big\{1-\sqrt{\frac{1-p^2}{1-p^2\,Sin^2\lambda}}\Big\}$$ (VIII, 412).

18) $$\int Arccot\{Tg\lambda . \sqrt{1-p^2 Cos^2 x}\} \frac{Sin^2 x . Tg x}{\sqrt{1-p^2 Cos^2 x}^3} \frac{dx}{x} = \frac{\pi}{2p^2}\left\{F\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - \right.$$
$$\left. - E\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\}\right\} + \frac{\pi\sqrt{1-p^2}}{2p^2} Tg\lambda . \left\{1-\sqrt{\frac{1-p^2}{1-p^2 Sin^2\lambda}}\right\}$$ (VIII, 412).

19) $$\int Arccot\{Tg\lambda . \sqrt{1-p^2 Cos^2 2x}\} \frac{Sin^2 x . Cos x}{\sqrt{1-p^2 Cos^2 2x}^3} \frac{dx}{x} = \frac{\pi}{8p^2}\left\{F\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - \right.$$
$$\left. - E\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\}\right\} + \frac{\pi\sqrt{1-p^2}}{8p^2} Tg\lambda . \left\{1-\sqrt{\frac{1-p^2}{1-p^2 Sin^2\lambda}}\right\}$$ (VIII, 412).

20) $$\int Arccot\{Tg\lambda . \sqrt{1-p^2 Cos^2 2x}\} \frac{Tg x}{\sqrt{1-p^2 Cos^2 2x}^3} \frac{dx}{x} = \frac{1}{2}\frac{\pi}{1-p^2} E\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} -$$
$$- \frac{\pi\, Tg\lambda}{2\sqrt{1-p^2}} \left\{1-\sqrt{\frac{1-p^2}{1-p^2 Sin^2\lambda}}\right\}$$ (VIII, 412).

21) $$\int Arccot\{Tg\lambda . \sqrt{1-p^2 Cos^2 2x}\} \frac{Cos^2 2x . Tg x}{\sqrt{1-p^2 Cos^2 2x}^3} \frac{dx}{x} = \frac{\pi}{2p^2(1-p^2)}\left\{E\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - \right.$$
$$\left. -(1-p^2) F\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\}\right\} - \frac{\pi\, Tg\lambda}{2p^2\sqrt{1-p^2}} \left\{1-\sqrt{\frac{1-p^2}{1-p^2 Sin^2\lambda}}\right\}$$
*(VIII, 413).

1) $$\int (1+2p\, Cos x+p^2)^{\frac{1}{2}r} Sin\left\{r\, Arccos\left(\frac{1+p\, Cos x}{\sqrt{1+2p\, Cos x+p^2}}\right)\right\} \frac{dx}{x} = \frac{\pi}{2}\{(1+p)^r-1\}$$ (VIII, 640).

2) $$\int (1+2p\, Cos x+p^2)^{\frac{1}{2}r} Sin\left\{ax + r\, Arccos\left(\frac{1+p\, Cos x}{\sqrt{1+2p\, Cos x+p^2}}\right)\right\} \frac{dx}{x} = \frac{\pi}{2}(1+p)^r$$ (VIII, 639).

3) $$\int (1+2p\, Cos x+p^2)^{\frac{1}{2}r} Sin\left\{r\, Arccos\left(\frac{1+p\, Cos x}{\sqrt{1+2p Cos x+p^2}}\right)\right\} . Cos ax \frac{dx}{x} = \frac{\pi}{2}\sum_a^\infty \binom{r}{n} p^n$$ (VIII, 639).

4) $$\int (1+2p\, Cos x+p^2)^{\frac{1}{2}r} Cos\left\{r\, Arccos\left(\frac{1+p\, Cos x}{\sqrt{1+2p Cos x+p^2}}\right)\right\} . Sin ax \frac{dx}{x} = \frac{\pi}{2}\sum_0^a \binom{r}{n} p^n$$ (VIII, 638)

5) $$\int (1+2p\, Cos 2x+p^2)^{\frac{1}{2}a} (p^2+2pq\, Cos 2x+q^2)^{\frac{1}{2}c} Sin\left\{a\, Arccos\left(\frac{1+p\, Cos 2x}{\sqrt{1+2p\, Cos 2x+p^2}}\right)\right\} .$$
$$Sin\left\{c\, Arccos\left(\frac{p+q\, Cos 2x}{\sqrt{p^2+2pq\, Cos 2x+q^2}}\right)\right\} . Sin x \frac{dx}{x} = \frac{\pi}{2} p^c \sum_1^\infty \binom{a}{n}\binom{c}{n} q^n$$ (VIII, 415).

6) $$\int (1+2p\,Cos\,2x+p^2)^{\frac{1}{2}a}(p^2+2pq\,Cos\,2x+q^2)^{\frac{1}{2}c}\,Sin\left\{a\,Arccos\left(\frac{1+p\,Cos\,2x}{\sqrt{1+2p\,Cos\,2x+p^2}}\right)\right\}.$$
$$Sin\left\{c\,Arccos\left(\frac{p+q\,Cos\,2x}{\sqrt{p^2+2pq\,Cos\,2x+q^2}}\right)\right\}.Tg\,x\frac{dx}{x}=\frac{\pi}{2}p^c\sum_1^\infty\binom{a}{n}\binom{c}{n}q^n \quad \text{(VIII, 415).}$$

7) $$\int (1+2p\,Cos\,4x+p^2)^{\frac{1}{2}a}(p^2+2pq\,Cos\,4x+q^2)^{\frac{1}{2}c}\,Sin\left\{a\,Arccos\left(\frac{1+p\,Cos\,4x}{\sqrt{1+2p\,Cos\,4x+p^2}}\right)\right\}.$$
$$Sin\left\{c\,Arccos\left(\frac{p+q\,Cos\,4x}{\sqrt{p^2+2pq\,Cos\,4x+q^2}}\right)\right\}.Tg\,x\frac{dx}{x}=\frac{\pi}{2}p^c\sum_1^\infty\binom{a}{n}\binom{c}{n}q^n \quad \text{(VIII, 415).}$$

8) $$\int (1+2p\,Cos\,2x+p^2)^{\frac{1}{2}a}(p^2+2pq\,Cos\,2x+q^2)^{\frac{1}{2}c}\,Cos\left\{a\,Arccos\left(\frac{1+p\,Cos\,2x}{\sqrt{1+2p\,Cos\,2x+p^2}}\right)\right\}.$$
$$Cos\left\{c\,Arccos\left(\frac{p+q\,Cos\,2x}{\sqrt{p^2+2pq\,Cos\,2x+q^2}}\right)\right\}.Sin\,x\frac{dx}{x}=\frac{\pi}{2}p^c\left\{2+\sum_1^\infty\binom{a}{n}\binom{c}{n}q^n\right\} \quad \text{(VIII, 416).}$$

9) $$\int (1+2p\,Cos\,2x+p^2)^{\frac{1}{2}a}(p^2+2pq\,Cos\,2x+q^2)^{\frac{1}{2}c}\,Cos\left\{a\,Arccos\left(\frac{1+p\,Cos\,2x}{\sqrt{1+2p\,Cos\,2x+p^2}}\right)\right\}.$$
$$Cos\left\{c\,Arccos\left(\frac{p+q\,Cos\,2x}{\sqrt{p^2+2pq\,Cos\,2x+q^2}}\right)\right\}.Tg\,x\frac{dx}{x}=\frac{\pi}{2}p^c\left\{2+\sum_1^\infty\binom{a}{n}\binom{c}{n}q^n\right\} \quad \text{(VIII, 416).}$$

10) $$\int (1+2p\,Cos\,4x+p^2)^{\frac{1}{2}a}(p^2+2pq\,Cos\,4x+q^2)^{\frac{1}{2}c}\,Cos\left\{a\,Arccos\left(\frac{1+p\,Cos\,4x}{\sqrt{1+2p\,Cos\,4x+p^2}}\right)\right\}.$$
$$Cos\left\{c\,Arccos\left(\frac{p+q\,Cos\,4x}{\sqrt{p^2+2pq\,Cos\,4x+q^2}}\right)\right\}.Tg\,x\frac{dx}{x}=\frac{\pi}{2}p^c\left\{2+\sum_1^\infty\binom{a}{n}\binom{c}{n}q^n\right\} \quad \text{(VIII, 416).}$$

11) $$\int\frac{(p^2+2pq\,Cos\,2x+q^2)^{\frac{1}{2}c}}{1-2p^c\,Cos\,2x+p^{2c}}\,Sin\left\{a\,Arccos\left(\frac{p+q\,Cos\,2x}{\sqrt{p^2+2pq\,Cos\,2x+q^2}}\right)\right\}.Sin\,2bx.Sin\,x\frac{dx}{x}=$$
$$=\frac{\pi}{2}p^{a-c}\sum_1^\infty\binom{a}{nc}q^{nc} \quad \text{(VIII, 416).}$$

12) $$\int\frac{(p^2+2pq\,Cos\,2x+q^2)^{\frac{1}{2}c}}{1-2p^c\,Cos\,2x+p^{2c}}\,Sin\left\{a\,Arccos\left(\frac{p+q\,Cos\,2x}{\sqrt{p^2+2pq\,Cos\,2x+q^2}}\right)\right\}.Sin\,2bx.Tg\,x\frac{dx}{x}=$$
$$=\frac{\pi}{2}p^{a-c}\sum_1^\infty\binom{a}{nc}q^{nc} \quad \text{(VIII, 416).}$$

13) $$\int\frac{(p^2+2pq\,Cos\,4x+q^2)^{\frac{1}{2}c}}{1-2p^c\,Cos\,4x+p^{2c}}\,Sin\left\{a\,Arccos\left(\frac{p+q\,Cos\,4x}{\sqrt{p^2+2pq\,Cos\,4x+q^2}}\right)\right\}.Sin\,4bx.Tg\,x\frac{dx}{x}=$$
$$=\frac{\pi}{2}p^{a-c}\sum_1^\infty\binom{a}{nc}q^{nc} \quad \text{(VIII, 416).}$$

14) $$\int \frac{(p^2+2pq\,Cos\,2x+q^2)^{\frac{1}{2}c}}{1-2p^c\,Cos\,2x+p^{2c}}\,Cos\left\{a\,Arccos\left(\frac{p+q\,Cos\,2x}{\sqrt{p^2+2pq\,Cos\,2x+q^2}}\right)\right\}.Cos\,2bx.Sin\,x\frac{dx}{x}=$$
$$=\frac{\pi}{2}p^{a-c}\left\{2+\sum_1^\infty\binom{a}{nc}q^{nc}\right\} \text{ (VIII, 416).}$$

15) $$\int \frac{(p^2+2pq\,Cos\,2x+q^2)^{\frac{1}{2}c}}{1-2p^c\,Cos\,2x+p^{2c}}\,Cos\left\{a\,Arccos\left(\frac{p+q\,Cos\,2x}{\sqrt{p^2+2pq\,Cos\,2x+q^2}}\right)\right\}.Cos\,2bx.Tg\,x\frac{dx}{x}=$$
$$=\frac{\pi}{2}p^{a-c}\left\{2+\sum_1^\infty\binom{a}{nc}q^{nc}\right\} \text{ (VIII, 416).}$$

16) $$\int \frac{(p^2+2pq\,Cos\,4x+q^2)^{\frac{1}{2}c}}{1-2p^c\,Cos\,4x+p^{2c}}\,Cos\left\{a\,Arccos\left(\frac{p+q\,Cos\,4x}{\sqrt{p^2+2pq\,Cos\,4x+q^2}}\right)\right\}.Cos\,4bx.Tg\,x\frac{dx}{x}=$$
$$=\frac{\pi}{2}p^{a-c}\left\{2+\sum_1^\infty\binom{a}{nc}q^{nc}\right\} \text{ (VIII, 416).}$$

F. Alg. rat. fract. à dén. q^2+x^2;
Circ. Dir. irrat. à fact. $(1+2r\,Cos\,x+r^2)^{\frac{1}{2}a}$; TABLE 452. Lim. 0 et ∞.
Circulaire Inverse.

1) $$\int(1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Sin\left\{a\,Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right)\right\}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}\left\{(1+re^{-qs})^a-1\right\}$$
(VIII, 501).

2) $$\int(1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Cos\left\{a\,Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right)\right\}\frac{dx}{q^2+x^2}=\frac{\pi}{2q}(1+re^{-qs})^a$$ (VIII, 501).

3) $$\int(1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Sin\left\{px+a\,Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right)\right\}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}e^{-pq}(1+re^{-qs})^a$$
(VIII, 502).

4) $$\int(1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Cos\left\{px+a\,Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right)\right\}\frac{dx}{q^2+x^2}=\frac{\pi}{2q}e^{-pq}(1+re^{-qs})^a$$
(VIII, 502).

5) $$\int(1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Sin\left\{a\,Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right)\right\}.Sin\,px\frac{dx}{q^2+x^2}=\frac{\pi}{4q}(e^{pq}-e^{-pq})$$
$$(1+re^{-qs})^a-\frac{\pi}{4q}e^{pq}\sum_0^d\binom{a}{n}r^n e^{-nqs}+\frac{\pi}{4q}e^{-pq}\sum_0^d\binom{a}{n}r^n e^{nqs}$$ (VIII, 502).

6) $\int (1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Sin\left\{a\,Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right)\right\}.Cos\,px\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4}(e^{pq}+e^{-pq})$
$(1+re^{-qs})^a-\frac{\pi}{4}e^{pq}\sum_0^d\binom{a}{n}r^ne^{-nqs}-\frac{\pi}{4}e^{-pq}\sum_0^d\binom{a}{n}r^ne^{nqs}$ [p fractionn.], $=$
$=\frac{\pi}{4}(e^{pq}+e^{-pq})(1+re^{-qs})^a-\frac{\pi}{4}e^{pq}\sum_0^{d-1}\binom{a}{n}r^ne^{-nqs}-\frac{\pi}{4}e^{-pq}\sum_0^d\binom{a}{n}r^ne^{nqs}$ [p entier]
(VIII, 502).

7) $\int (1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Cos\left\{a\,Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right)\right\}.Sin\,px\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4}(e^{-pq}-e^{pq})$
$(1+re^{-qs})^a+\frac{\pi}{4}e^{pq}\sum_0^d\binom{a}{n}r^ne^{-nqs}+\frac{\pi}{4}e^{-pq}\sum_0^d\binom{a}{n}r^ne^{nqs}$ [p fractionn.], $=$
$=\frac{\pi}{4}(e^{-pq}-e^{pq})(1+re^{-qs})^a+\frac{\pi}{4}e^{pq}\sum_0^{d-1}\binom{a}{n}r^ne^{-nqs}+\frac{\pi}{4}e^{-pq}\sum_0^d\binom{a}{n}r^ne^{nqs}$ [p entier]
(VIII, 501).

8) $\int (1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Cos\left\{a\,Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right)\right\}.Cos\,px\frac{dx}{q^2+x^2}=\frac{\pi}{4q}(e^{pq}+e^{-pq})$
$(1+re^{-qs})^a-\frac{\pi}{4q}e^{pq}\sum_0^d\binom{a}{n}r^ne^{-nqs}+\frac{\pi}{4q}e^{-pq}\sum_0^d\binom{a}{n}r^ne^{nqs}$ (VIII, 501).

Dans 5) à 8) on a $d=\mathcal{E}\frac{p}{s}$.

9) $\int (1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Sin\left\{a\,Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right)\right\}.Sin^{2b}x\frac{x\,dx}{q^2+x^2}=\frac{(-1)^b\pi}{2^{2b+1}}(e^q-e^{-q})^{2b}$
$\{(1+re^{-qs})^a-1\}$ [$s>2b$], $=\frac{(-1)^b\pi}{2^{2b+1}}[(e^q-e^{-q})^{2b}\{(1+re^{-qs})^a-1\}-ar]$ [$s=2b$]
(V, 104).

10) $\int (1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Cos\left\{a\,Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right)\right\}.Sin^{2b+1}x\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{b-1}\pi}{2^{2b+2}}\Big[e^{-(2b+1)q}$
$\{(1-e^{(2b+1)2q})(1-e^{-2q})^{2b+1}-2\sum_0^b(-1)^n\binom{2b+1}{n}e^{2nq}\}+(e^q-e^{-q})^{2b+1}$
$\{(1+re^{-qs})^a-1\}\Big]$ [$s>2b+1$], $=\frac{(-1)^{b-1}\pi}{2^{2b+2}}\Big[e^{-(2b+1)q}\{(1-e^{(2b+1)2q})$
$(1-e^{-2q})^{2b+1}-2\sum_0^b(-1)^n\binom{2b+1}{n}e^{2nq}\}-ar+(e^q-e^{-q})^{2b+1}$
$\{(1+re^{-qs})^a-1\}\Big]$ [$s=2b+1$] (V, 104).

11) $$\int(1+2r\,Cos\,s\,x+r^2)^{\frac{1}{2}a}\,Cos\left\{a\,Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right)\right\}.\,Cos^{2b}x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{2b+1}q}\left[\binom{2b}{b}+\right.$$
$$\left.+2\sum_1^b\binom{2b}{n+b}e^{-2nq}+(e^q+e^{-q})^{2b}\{(1+re^{-qs})^a-1\}\right][s\geqq 2b]\ (\text{V, }104).$$

12) $$\int(1+2r\,Cos\,s\,x+r^2)^{\frac{1}{2}a}\,Cos\left\{a\,Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right)\right\}.\,Cos^{2b+1}x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{2b+2}q}$$
$$\left[2\sum_0^b\binom{2b+1}{n+b+1}e^{-(2n+1)q}+(e^q+e^{-q})^{2b+1}\{(1+re^{-qs})^a-1\}\right][s\geqq 2b+1]\ (\text{V, }104).$$

13) $$\int(1+2r\,Cos\,s\,x+r^2)^{\frac{1}{2}a}\,Sin\left\{a\,Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right)\right\}.\,Sin\,px.\,Sin^{2b+1}x\,\frac{x\,dx}{q^2+x^2}=$$
$$=\frac{(-1)^{b-1}\pi}{2^{2b+2}}(e^q-e^{-q})^{2b+1}(e^{pq}-e^{-pq})\{(1+re^{-qs})^a-1\}[p<s-2b-1],=$$
$$=\frac{(-1)^{b-1}\pi}{2^{2b+2}}[(e^q-e^{-q})^{2b+1}(e^{pq}-e^{-pq})\{(1+re^{-qs})^a-1\}-ar][p=s-2b-1]$$
(V, 107).

14) $$\int(1+2r\,Cos\,s\,x+r^2)^{\frac{1}{2}a}\,Sin\left\{a\,Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right)\right\}.\,Sin\,px.\,Cos^{b}x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{b+1}q}(e^q+e^{-q})^b$$
$$(e^{pq}-e^{-pq})\{(1+re^{-qs})^a-1\}[p\leqq s-b]\ (\text{V, }105).$$

15) $$\int(1+2r\,Cos\,s\,x+r^2)^{\frac{1}{2}a}\,Sin\left\{a\,Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right)\right\}.\,Cos\,px.\,Sin^{2b}x\,\frac{x\,dx}{q^2+x^2}=$$
$$=\frac{(-1)^b\pi}{2^{2b+2}}(e^q-e^{-q})^{2b}(e^{pq}+e^{-pq})\{(1+re^{-qs})^a-1\}[p<s-2b],=$$
$$=\frac{(-1)^b\pi}{2^{2b+2}}[(e^q-e^{-q})^{2b}(e^{pq}+e^{-pq})\{(1+re^{-qs})^a-1\}-ar][p=s-2b]\ (\text{V, }106).$$

16) $$\int(1+2r\,Cos\,s\,x+r^2)^{\frac{1}{2}a}\,Cos\left\{a\,Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right)\right\}.\,Sin\,px.\,Sin^{2b}x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^b\pi}{2^{2b+2}}$$
$$(e^q-e^{-q})^{2b}\{(e^{pq}+e^{-pq})-(e^{pq}-e^{-pq})(1+re^{-qs})^a\}[2p>4b<s],=\frac{(-1)^b\pi}{2^{2b+2}}$$
$$\left[(e^q-e^{-q})^{2b}\{(e^{pq}+e^{-pq})-(e^{pq}-e^{-pq})(1+re^{-qs})^a\}-2e^{(2b-p)q}\sum_0^{d-1}(-1)^n\binom{2b}{n}\right.$$
$$\left.e^{-2nq}-2e^{(p-2b)q}\sum_0^d(-1)^n\binom{2b}{n}e^{2nq}\right][4b>2p<s,p\,\text{entier}],=\frac{(-1)^b\pi}{2^{2b+2}}\left[(e^q-e^{-q})^{2b}\right.$$
$$\{(e^{pq}+e^{-pq})-(e^{pq}-e^{-pq})(1+re^{-qs})^a\}-2e^{(2b-p)q}\sum_0^d(-1)^n\binom{2b}{n}e^{-2nq}-2e^{(p-2b)q}$$
$$\left.\sum_0^d(-1)^n\binom{2b}{n}e^{2nq}\right][4b>2p<s,p\,\text{fractionn.}],=\frac{(-1)^b\pi}{2^{2b+2}}[(e^q-e^{-q})^{2b}\{(e^{pq}+e^{-pq})-$$

$-(e^{pq}-e^{-pq})(1+re^{-qs})^a\}+ar]$ $[2s-4b=2p>s>4b]$, $=\frac{(-1)^b\pi}{2^{2b+2}}\Big[(e^q-e^{-q})^{2b}$ $\{(e^{pq}+e^{-pq})-(e^{pq}-e^{-pq})(1+re^{-qs})^a\}+ar-2e^{(2b-p)q}\sum_0^{d-1}(-1)^n\binom{2b}{n}e^{-2nq}-$ $-2e^{(p-2b)q}\sum_0^{d}(-1)^n\binom{2b}{n}e^{2nq}\Big]$ $[2s-4b=2p<s<4b, p$ entier$]$, $=\frac{(-1)^b\pi}{2^{2b+2}}$ $\Big[(e^q-e^{-q})^{2b}\{(e^{pq}+e^{-pq})-(e^{pq}-e^{-pq})(1+re^{-qs})^a\}+ar-2e^{(2b-p)q}\sum_0^{d}(-1)^n$ $\binom{2b}{n}e^{-2nq}-2e^{(p-2b)q}\sum_0^{d}(-1)^n\binom{2b}{n}e^{2nq}\Big]$ $[2s-4b=2p<s<4b, p$ fractionn.$]$

$\Big[d=\mathcal{E}\left(b-\frac{1}{2}p\right)\Big]$ (V, 105, 106).

17) $\int(1+2r\,Cos\,s\,x+r^2)^{\frac{1}{2}a}\,Cos\left\{a\,Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right)\right\}.Cos\,p\,x.Sin^{2b+1}x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^b\pi}{2^{2b+3}}$ $(e^q-e^{-q})^{2b+1}\{(e^{pq}-e^{-pq})-(e^{pq}+e^{-pq})(1+re^{-qs})^a\}$ $[2p<4b+2<s]$, $=\frac{(-1)^b\pi}{2^{2b+3}}$ $\Big[(e^q-e^{-q})^{2b+1}\{(e^{pq}-e^{-pq})-(e^{pq}+e^{-pq})(1+re^{-qs})^a\}+2e^{(2b+1-p)q}\sum_0^{d-1}(-1)^n$ $\binom{2b+1}{n}e^{-2nq}+2e^{(p-2b-1)q}\sum_0^{d}(-1)^n\binom{2b+1}{n}e^{2nq}\Big]$ $[4b+2>p<s, p$ entier$]$, $=$ $=\frac{(-1)^b\pi}{2^{2b+3}}\Big[(e^q-e^{-q})^{2b+1}\{(e^{pq}-e^{-pq})-(e^{pq}+e^{-pq})(1+re^{-qs})^a\}+2e^{(2b+1-p)q}$ $\sum_0^{d}(-1)^n\binom{2b+1}{n}e^{-2nq}+2e^{(p-2b-1)q}\sum_0^{d}(-1)^n\binom{2b+1}{n}e^{2nq}\Big]$ $[4b+2>p<s, p$ fract.$]$, $=$ $=\frac{(-1)^b\pi}{2^{2b+3}}[(e^q-e^{-q})^{2b+1}\{(e^{pq}-e^{-pq})-(e^{pq}+e^{-pq})(1+re^{-qs})^a\}+ar]$ $[2s-4b-2=$ $=2p>s>4b+2]$, $=\frac{(-1)^b\pi}{2^{2b+3}}\Big[(e^q-e^{-q})^{2b+1}\{(e^{pq}-e^{-pq})-(e^{pq}+e^{-pq})(1+re^{-qs})^a\}+$ $+ar+2e^{(2b+1-p)q}\sum_0^{d-1}(-1)^n\binom{2b+1}{n}e^{-2nq}+2e^{(p-2b-1)q}\sum_0^{d}(-1)^n\binom{2b+1}{n}e^{2nq}\Big]$ $[2s-4b-2=2p<s<4b+2, p$ entier$]$, $=\frac{(-1)^b\pi}{2^{2b+3}}\Big[(e^q-e^{-q})^{2b+1}\{(e^{pq}-e^{-pq})-$ $-(e^{pq}+e^{-pq})(1+re^{-qs})^a\}+ar+2e^{(2b+1-p)q}\sum_0^{d}(-1)^n\binom{2b+1}{n}e^{-2nq}+2e^{(p-2b-1)q}$ $\sum_0^{d}(-1)^n\binom{2b+1}{n}e^{2nq}\Big]$ $[2s-4b-2=2p<s<4b+2, p$ fract.$]$ $\Big[d=\mathcal{E}\frac{1}{2}(2b+1-p)\Big]$

(V, 106, 107).

F. Alg. rat. fract. à dén. q^2+x^2;
Circ. Dir. irrat. à fact. $(1+2r\,Cos\,x+r^2)^{\frac{1}{2}a}$; TABLE 452, suite. Lim. 0 et ∞.
Circulaire Inverse.

18) $$\int(1+2r\,Cos\,s\,x+r^2)^{\frac{1}{2}a}\,Cos\left\{a\,Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right)\right\}.Cos\,p\,x\,.\,Cos^b\,x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{b+1}q}(e^q+e^{-q})^b$$
$$\left\{(e^{-pq}-e^{pq})+(e^{pq}+e^{-pq})(1+re^{-qs})^a\right\}\,[2p\geqq 2b\leqq s],\;=\frac{\pi}{2^{b+1}q}\Big[(e^q+e^{-q})^b$$
$$\left\{(e^{-pq}-e^{pq})+(e^{pq}+e^{-pq})(1+re^{-qs})^a\right\}-2e^{(b-p)q}\sum_0^d\binom{b}{n}e^{-2nq}+2e^{(p-b)q}$$
$$\sum_0^d\binom{b}{n}e^{2nq}\Big]\,[2b>2p\leqq s]\left[d=\mathcal{E}\,\frac{1}{2}(b-p)\right]$$ (V, 105).

F. Alg. rat. fract. à dén. q^2-x^2;
Circ. Dir. irrat. à fact. $(1+2r\,Cos\,s\,x+r^2)^{\frac{1}{2}a}$; TABLE 453. Lim. 0 et ∞.
Circulaire Inverse.

1) $$\int(1+2r\,Cos\,s\,x+r^2)^{\frac{1}{2}a}\,Sin\left\{a\,Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right)\right\}\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\Big[1-(1+2r\,Cos\,q\,s+r^2)^{\frac{1}{2}a}$$
$$Cos\left\{a\,Arctg\left(\frac{r\,Sin\,q\,s}{1+r\,Cos\,q\,s}\right)\right\}\Big]$$ (VIII, 512).

2) $$\int(1+2r\,Cos\,s\,x+r^2)^{\frac{1}{2}a}\,Cos\left\{a\,Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right)\right\}\frac{dx}{q^2-x^2}=\frac{\pi}{2q}(1+2r\,Cos\,q\,s+r^2)^{\frac{1}{2}a}$$
$$Sin\left\{a\,Arctg\left(\frac{r\,Sin\,q\,s}{1+r\,Cos\,q\,s}\right)\right\}$$ (VIII, 511).

3) $$\int(1+2r\,Cos\,s\,x+r^2)^{\frac{1}{2}a}\,Sin\left\{p\,x+a\,Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right)\right\}\frac{x\,dx}{q^2-x^2}=-\frac{\pi}{2}(1+2r\,Cos\,q\,s+r^2)^{\frac{1}{2}a}$$
$$Cos\left\{p\,q+a\,Arctg\left(\frac{r\,Sin\,q\,s}{1+r\,Cos\,q\,s}\right)\right\}\left[\frac{p}{s}\text{ fractionn.}\right],\;=-\frac{\pi}{2}(1+2r\,Cos\,q\,s+r^2)^{\frac{1}{2}a}$$
$$Cos\left\{p\,q+a\,Arctg\left(\frac{r\,Sin\,q\,s}{1+r\,Cos\,q\,s}\right)\right\}+\frac{\pi}{2}\binom{a}{d}r^d\left[\frac{p}{s}\text{ entier}=d\right]$$ (VIII, 513).

4) $$\int(1+2r\,Cos\,s\,x+r^2)^{\frac{1}{2}a}\,Cos\left\{p\,x+a\,Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right)\right\}\frac{dx}{q^2-x^2}=\frac{\pi}{2q}(1+2r\,Cos\,q\,s+r^2)^{\frac{1}{2}a}$$
$$Sin\left\{p\,q+a\,Arctg\left(\frac{r\,Sin\,q\,s}{1+r\,Cos\,q\,s}\right)\right\}$$ (VIII, 512).

5) $$\int(1+2r\,Cos\,s\,x+r^2)^{\frac{1}{2}a}\,Sin\left\{a\,Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right)\right\}.Sin\,p\,x\,\frac{dx}{q^2-x^2}=-\frac{\pi}{2q}(1+2r\,Cos\,q\,s+r^2)^{\frac{1}{2}a}$$
$$Cos\left\{a\,Arctg\left(\frac{r\,Sin\,q\,s}{1+r\,Cos\,q\,s}\right)\right\}.Sin\,p\,q+\frac{\pi}{2q}\sum_0^d\binom{a}{n}r^n\,Sin\,\{(p-n\,s)q\}$$
(VIII, 512).

6) $\int (1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Sin\left\{a\,Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right)\right\}.Cos\,px\,\frac{x\,dx}{q^2-x^2} = -\frac{\pi}{2}(1-2r\,Cos\,qs+r^2)^{\frac{1}{2}a}$
$Cos\left\{a\,Arctg\left(\frac{r\,Sin\,qs}{1+r\,Cos\,qs}\right)\right\}.Cos\,pq+\frac{\pi}{2}\sum_0^d\binom{a}{n}r^n\,Cos\{(p-ns)q\}$ [p fractionn.], $=$
$= -\frac{\pi}{2}(1+2r\,Cos\,qs+r^2)^{\frac{1}{2}a}\,Cos\left\{a\,Arctg\left(\frac{r\,Sin\,qs}{1+r\,Cos\,qs}\right)\right\}.Cos\,pq+\frac{\pi}{4}\binom{a}{d}r^d+\frac{\pi}{2}\sum_0^d\binom{a}{n}r^n$
$Cos\{(p-ns)q\}$ [p entier] (VIII, 512).

7) $\int (1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Cos\left\{a\,Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right)\right\}.Sin\,px\,\frac{x\,dx}{q^2-x^2} = \frac{\pi}{2}(1+2r\,Cos\,qs+r^2)^{\frac{1}{2}a}$
$Sin\left\{a\,Arctg\left(\frac{r\,Sin\,qs}{1+r\,Cos\,qs}\right)\right\}.Sin\,pq-\frac{\pi}{2}\sum_0^d\binom{a}{n}r^n\,Cos\{(p-ns)q\}$ [p fractionn.] $=$
$= \frac{\pi}{2}(1+2r\,Cos\,qs+r^2)^{\frac{1}{2}a}\,Sin\left\{a\,Arctg\left(\frac{r\,Sin\,qs}{1+r\,Cos\,qs}\right)\right\}.Sin\,pq+\frac{\pi}{4}\binom{a}{d}r^d-\frac{\pi}{2}\sum_0^d\binom{a}{n}r^n$
$Cos\{(p-ns)q\}$ [p entier] (VIII, 512).

8) $\int (1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Cos\left\{a\,Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right)\right\}.Cos\,px\,\frac{dx}{q^2-x^2} = \frac{\pi}{2q}(1+2r\,Cos\,qs+r^2)^{\frac{1}{2}a}$
$Sin\left\{a\,Arctg\left(\frac{r\,Sin\,qs}{1+r\,Cos\,qs}\right)\right\}.Cos\,pq+\frac{\pi}{2q}\sum_0^d\binom{a}{n}r^n\,Sin\{(p-ns)q\}$ (VIII, 511).

Dans 5) à 8) on a $d = \mathcal{E}\frac{p}{s}$.

F. Alg. irrat. fract. à dén. $(q^2+x^2)^{\frac{1}{2}a}$;
Circulaire Directe; TABLE 454. Lim. 0 et ∞.
Circulaire Inverse.

1) $\int Sin\left(r\,Arctg\frac{x}{q}\right).Sin\,px\,\frac{dx}{(q^2+x^2)^{\frac{1}{2}r}} = \frac{\pi e^{-pq}p^{r-1}}{2\Gamma(r)}$ (VIII, 277).

2) $\int Cos\left(a\,Arctg\frac{x}{q}\right).Sin\,px\,\frac{x\,dx}{(p^2+x^2)^{\frac{1}{2}a}} = \frac{(-1)^{a-1}}{1^{a-1/1}}\,\frac{\pi}{2}\,\frac{d^{a-1}}{dq^{a-1}}.q\,e^{-pq}$ (VIII, 278).

3) $\int Cos\left(r\,Arctg\frac{x}{q}\right).Cos\,px\,\frac{dx}{(q^2+x^2)^{\frac{1}{2}r}} = \frac{\pi e^{-pq}p^{r-1}}{2\Gamma(r)}$ (VIII, 277).

4) $\int Cos\left(px+r\,Arctg\frac{x}{q}\right)\frac{dx}{(q^2+x^2)^{\frac{1}{2}r}} = 0$ V. T. 44, N. 3.

5) $\int Cos\left(px-r\,Arctg\frac{x}{q}\right)\frac{dx}{(q^2+x^2)^{\frac{1}{2}r}} = \frac{\pi e^{-pq}p^{r-1}}{\Gamma(r)}$ V. T. 44, N. 2.

6) $\int Cos\left(px + r\, Arctg\frac{x}{q}\right) \frac{dx}{(q^2+x^2)^{\frac{1}{2}r-1}} = \frac{\pi e^{-pq}}{2^{r+1}}$ V. T. 44, N. 4.

7) $\int Cos\left(r\, Arctg\frac{x}{q}\right) \frac{dx}{(q^2+x^2)^{\frac{1}{2}r}} = 0$ (VIII, 573).

8) $\int Cos\left\{(r-a-1)\, Arctg\frac{x}{q}\right\} \frac{dx}{(q^2+x^2)^{\frac{1}{2}(r+a+1)}} = \frac{\pi}{2^{r+a}} \frac{r^{a/1}}{1^{a/1}} \frac{1}{q^{r+a}}$ (VIII, 573).

9) $\int Sin\left(r\, Arctg\frac{x}{q}\right).Sin\left(a\, Arctg\frac{x}{q}\right) \frac{dx}{(q^2+x^2)^{\frac{1}{2}(a+r)}} = \frac{\pi}{2^{r+a}} \frac{r^{a-1/1}}{1^{a-1/1}} \frac{1}{q^{r+a-1}}$ (VIII, 572).

10) $\int Sin\left(r\, Arctg\frac{x}{q}\right).Cos\left(a\, Arctg\frac{x}{q}\right) \frac{x\,dx}{(q^2+x^2)^{\frac{1}{2}(a+r)}} = \frac{\pi}{2^{r+a}} \frac{r^{a-1/1}}{1^{a-1/1}} \frac{1}{q^{r+a-2}}$ (VIII, 574).

11) $\int Cos\left(r\, Arctg\frac{x}{q}\right).Cos\left(a\, Arctg\frac{x}{q}\right) \frac{dx}{(q^2+x^2)^{\frac{1}{2}(a+r)}} = \frac{\pi}{2^{r+a}} \frac{r^{a-1/1}}{1^{a-1/1}} \frac{1}{q^{r+a-1}}$ (VIII, 572).

12) $\int Sin^s rx . Tg\, rx . Cos\left\{srx + c\, Arctg\frac{x}{q}\right\} \frac{dx}{(q^2+x^2)^{\frac{1}{2}c}} = 0$ (H, 87).

13) $\int Sin^s rx . Cot\, rx . Cos\left\{srx + c\, Arctg\frac{x}{q}\right\} \frac{dx}{(q^2+x^2)^{\frac{1}{2}c}} = 0$ (H, 84).

14) $\int Sin^s rx . Cosec\, rx . Cos\left\{srx + c\, Arctg\frac{x}{q}\right\} \frac{dx}{(q^2+x^2)^{\frac{1}{2}c}} = 0$ (H, 89).

15) $\int Cos^s rx . Cos^{s_1} r_1 x \ldots Cos\left\{(sr+s_1r_1+\ldots)x + c\, Arctg\frac{x}{q}\right\} \frac{dx}{(q^2+x^2)^{\frac{1}{2}c}} = 0$ (H, 45).

16) $\int Sin^s rx . Sin^{s_1} r_1 x \ldots Cos\left\{(s+s_1+\ldots)\frac{1}{2}\pi - (sr+s_1r_1+\ldots)x - c\, Arctg\frac{x}{q}\right\} \frac{dx}{(q^2+x^2)^{\frac{1}{2}c}} = 0$ (H, 50).

17) $\int Cos^t px \ldots Sin^s rx \ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi - (tp+\ldots+sr+\ldots)x - c\, Arctg\frac{x}{q}\right\} \frac{dx}{(q^2+x^2)^{\frac{1}{2}c}} = 0$ (H, 55).

18) $\int (1-2e^r Cos\, x + e^{2r})^{\frac{1}{2}c} Cos\left\{px + c\, Arctg\left(\frac{Sin\, x}{Cos\, x - e^{-r}}\right) + a\, Arctg\frac{x}{q}\right\} \frac{dx}{(q^2+x^2)^{\frac{1}{2}a}} = 0$ (IV, 556).

F. Alg. irrat. fract. à dén. $x^r(q^2+x^2)^{\frac{1}{2}a}$;
Circulaire Directe; TABLE 455. Lim. 0 et ∞.
Circulaire Inverse.

1) $\int Sin\left(p\, Arctg\frac{x}{q}\right)\frac{dx}{x(q^2+x^2)^{\frac{1}{2}p}}=\frac{\pi}{2}q^{-p}$ (VIII, 449).

2) $\int Sin\left\{(p-a)\,Arctg\frac{x}{q}\right\}\frac{dx}{x(q^2+x^2)^{\frac{1}{2}(p+a)}}=\frac{\pi}{2.1^{a-1/1}q^{p+a}}\left\{p^{a-1/1}-\frac{1}{2^{p+a-2}}\sum_0^{a-1}\binom{a-1}{n}2^{n/2}p^{a-n-1/1}\right\}$ (VIII, 574).

3) $\int Sin\left(p\, Arctg\frac{x}{q}\right)\frac{dx}{x^r(q^2+x^2)^{\frac{1}{2}p}}=\frac{\pi}{2q^{p+r-1}}\,Cosec\,\frac{1}{2}r\pi\,\frac{\Gamma(p+r-1)}{\Gamma(p)\Gamma(r)}\;[2>r>0]$ (VIII, 449).

4) $\int Cos\left(p\, Arctg\frac{x}{q}\right)\frac{dx}{x^r(q^2+x^2)^{\frac{1}{2}p}}=\frac{\pi}{2q^{p+r-1}}\,Sec\,\frac{1}{2}r\pi\,\frac{\Gamma(p+r-1)}{\Gamma(p)\Gamma(r)}\;[1>r>-1]$ (VIII, 448).

5) $\int Sin(cx+p\,Arctg\,x)\frac{dx}{x(1+x^2)^{\frac{1}{2}p}}=\frac{\pi}{2}$ V. T. 51, N. 15.

6) $\int\{Sin(p\,Arctg\,x)+Sin(ax-p\,Arctg\,x)\}\frac{dx}{x(1+x^2)^{\frac{1}{2}p}}=\frac{\pi}{2}$ (IV, 557).

7) $\int Cos\left\{x-\frac{Cos(p\,Arctg\,x)}{(1+x^2)^{\frac{1}{2}p}}\right\}\frac{dx}{x}=Z'(p)$ (VIII, 682).

8) $\int Sin\left(a\,Arctg\frac{x}{q}\right).Cos\,px\,\frac{dx}{x(q^2+x^2)^{\frac{1}{2}a}}=\frac{(-1)^{a-1}}{1^{a-1/1}}\frac{\pi}{2}\frac{d^{a-1}}{dq^{a-1}}.\frac{e^{-pq}}{q}$ (VIII, 277).

9) $\int Sin\left(p\,Arctg\frac{x}{q}\right).Cos\left(a\,Arctg\frac{x}{q}\right)\frac{dx}{x(q^2+x^2)^{\frac{1}{2}(a+p)}}=\frac{\pi}{1^{a-1/1}}\frac{1}{2q^{p+a}}\left\{p^{a-1/1}-\right.$
$\left.-\frac{1}{2^{p+a-1}}\sum_0^{a-1}\binom{a-1}{n}2^{n/2}p^{a-n-1/1}\right\}$ (VIII, 574).

10) $\int Cos\left(p\,Arctg\frac{x}{q}\right).Sin\left(a\,Arctg\frac{x}{q}\right)\frac{dx}{x(q^2+x^2)^{\frac{1}{2}(a+p)}}=\frac{\pi}{2^{p+a}1^{a-1/1}}\frac{1}{q^{p+a}}\sum_0^{a-1}$
$\binom{a-1}{n}2^{n/2}p^{a-n-1/1}$ (VIII, 574).

F. Alg. irrat. fract. à dén. prod. de bin.;
Circulaire Directe; TABLE 456. Lim. 0 et ∞.
Circulaire Inverse.

1) $\int Sin\left(p\,Arctg\frac{x}{q}\right)\frac{x\,dx}{(s^2+x^2)(q^2+x^2)^{\frac{1}{2}p}}=\frac{\pi}{2}\frac{1}{(q+s)^p}$ (VIII, 449).

2) $\int Cos\left(p\,Arctg\frac{x}{q}\right)\frac{dx}{(s^2+x^2)(q^2+x^2)^{\frac{1}{2}p}}=\frac{\pi}{2s}\frac{1}{(q+s)^p}$ (VIII, 449).

3) $\int Sin\left(p\, Arctg\frac{x}{q}\right)\frac{x\,dx}{(r^2+x^2)^{a+1}(q^2+x^2)^{\frac{1}{2}p}} = \frac{\pi}{2(2r)^a(q+r)^{p+a}}\frac{p^{a/1}}{1^{a/1}}\sum_0^\infty \frac{(a+n-1)^{2n/-1}}{2^{n/2}(p+a-1)^{n/-1}}\left(\frac{q+r}{r}\right)^n$ (VIII, 450).

4) $\int Cos\left(p\, Arctg\frac{x}{q}\right)\frac{dx}{(r^2+x^2)^{a+1}(q^2+x^2)^{\frac{1}{2}p}} = \frac{\pi}{(2r)^{a+1}(q+r)^{p+a}}\frac{p^{a/1}}{1^{a/1}}\sum_0^\infty \frac{(a+n)^{2n/-1}}{2^{n/2}(p+a-1)^{n/-1}}\left(\frac{q+r}{r}\right)^n$ (VIII, 450).

5) $\int Sin\left(p\, Arctg\frac{x}{q}\right)\frac{dx}{x(r^2+x^2)(q^2+x^2)^{\frac{1}{2}p}} = \frac{\pi}{2r^2}\left\{\frac{1}{q^p}-\frac{1}{(1+q)^p}\right\}$ (VIII, 450).

6) $\int Sin\left(p\, Arctg\frac{x}{q}+a\, Arctg\frac{x}{s}\right)\frac{dx}{x(s^2+x^2)^{\frac{1}{2}a}(q^2+x^2)^{\frac{1}{2}p}} = \frac{\pi}{2q^p s^a}\frac{p^{a-1/1}}{1^{a-1/1}}$ (VIII, 574).

7) $\int Sin\left(p\, Arctg\frac{x}{q}-a\, Arctg\frac{x}{s}\right)\frac{dx}{x(s^2+x^2)^{\frac{1}{2}a}(q^2+x^2)^{\frac{1}{2}p}} = \frac{\pi}{s.1^{a-1/1}}\left\{\frac{p^{a-1/1}}{2s^{a-1}q^p} - \frac{1}{(q+s)^{a+p-1}}\sum_0^{a-1}\binom{a-1}{n}1^{n/1}p^{a-n-1/1}\left(\frac{q+s}{s}\right)^n\right\}$ (VIII, 574).

8) $\int Cos\left(p\, Arctg\frac{x}{q}+a\, Arctg\frac{x}{s}\right)\frac{dx}{(s^2+x^2)^{\frac{1}{2}a}(q^2+x^2)^{\frac{1}{2}p}} = 0$ (VIII, 573).

9) $\int Cos\left(p\, Arctg\frac{x}{q}-a\, Arctg\frac{x}{s}\right)\frac{dx}{(s^2+x^2)^{\frac{1}{2}a}(q^2+x^2)^{\frac{1}{2}p}} = \frac{p^{a-1/1}}{1^{a-1/1}}\frac{\pi}{(q+s)^{p+a-1}}$ (VIII, 573).

10) $\int Sin\left(p\, Arctg\frac{x}{q}\right).Sin\left(a\, Arctg\frac{x}{s}\right)\frac{dx}{(s^2+x^2)^{\frac{1}{2}a}(q^2+x^2)^{\frac{1}{2}p}} = \frac{\pi}{2}\frac{p^{a-1/1}}{1^{a-1/1}}\frac{1}{(q+s)^{p+a-1}}$ (VIII, 572).

11) $\int Sin\left(p\, Arctg\frac{x}{q}\right).Cos\left(a\, Arctg\frac{x}{s}\right)\frac{x\,dx}{(s^2+x^2)^{\frac{1}{2}a}(q^2+x^2)^{\frac{1}{2}p}} = \frac{\pi}{2}\frac{p^{a-1/1}}{1^{a-1/1}}\frac{(a-1)q+(p-1)s}{p+a-2}\frac{1}{(q+s)^{p+a-1}}$ (VIII, 574).

12) $\int Sin\left(p\, Arctg\frac{x}{q}\right).Cos\left(a\, Arctg\frac{x}{s}\right)\frac{dx}{x(s^2+x^2)^{\frac{1}{2}a}(q^2+x^2)^{\frac{1}{2}p}} = \frac{\pi}{2s.1^{a-1/1}}\left\{\frac{p^{a-1/1}}{s^{a-1}q^p} - \frac{1}{(q+s)^{p+a-1}}\sum_0^{a-1}\binom{a-1}{n}1^{n/1}p^{a-n-1/1}\left(\frac{q+s}{s}\right)^n\right\}$ (VIII, 574).

13) $$\int Cos\left(p\, Arctg\frac{x}{q}\right).Sin\left(a\, Arctg\frac{x}{s}\right)\frac{dx}{x(s^2+x^2)^{\frac{1}{2}a}(q^2+x^2)^{\frac{1}{2}p}}=\frac{\pi}{1^{a-1/1}\,2\,s\,(q+s)^{p+a-1}}\sum_{0}^{a-1}\binom{a-1}{n}1^{n/1}\,p^{a-n-1/1}\left(\frac{q+s}{s}\right)^n$$ (VIII, 578).

14) $$\int Cos\left(p\, Arctg\frac{x}{q}\right).Cos\left(a\, Arctg\frac{x}{s}\right)\frac{dx}{(s^2+x^2)^{\frac{1}{2}a}(q^2+x^2)^{\frac{1}{2}p}}=\frac{\pi}{2}\,\frac{p^{a-1/1}}{1^{a-1/1}}\,\frac{1}{(q+s)^{p+a-1}}$$ (VIII, 572).

F. Algébrique;
Circulaire Directe;
Circulaire Inverse.

TABLE 457.

Lim. 0 et $\frac{\pi}{2}$.

1) $$\int Arctg(p\, Sin\, x)\frac{x\,dx}{Sin\,x.Tang\,x}=\frac{\pi}{2}\left\{l\frac{1+p}{p}+l\{p+\sqrt{1+p^2}\}-Arctg\,p\right\}$$

V. T. 207, N. 11 et T. 342, N. 1.

2) $$\int Arctg(p\, Cos\,x).Tg\,x\frac{x\,dx}{Cos\,x}=\frac{\pi}{2}\left\{p+l\frac{1+p}{p}-l\{p+\sqrt{1+p^2}\}\right\}$$

V. T. 208, N. 20 et T. 342, N. 2.

3) $$\int Arctg\left\{\frac{Cot\lambda}{\sqrt{1-p^2\,Sin^2x}}\right\}.\frac{x\,Sin\,2x}{\sqrt{1-p^2\,Sin^2x}}dx=\frac{\pi}{p^2}\Big[E\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-$$ $$-Cot\lambda.\left\{\frac{1}{\sqrt{1-p^2\,Sin^2\lambda}}-1\right\}-\sqrt{1-p^2}.Arccot[Tg\lambda.\sqrt{1-p^2}]-$$ $$-Cot\lambda.l\frac{2\sqrt{1-p^2\,Sin^2\lambda}}{1+\sqrt{1-p^2\,Sin^2\lambda}}\Big]$$ V. T. 207, N. 2 et T. 341, N. 13.

4) $$\int Arctg\left\{\frac{Cot\lambda}{\sqrt{1-p^2\,Sin^2x}}\right\}.\frac{x\,Sin\,2x}{\sqrt{1-p^2\,Sin^2x}^3}dx=\frac{\pi}{p^2}\Big[\frac{1}{\sqrt{1-p^2}}Arccot[Tg\lambda.\sqrt{1-p^2}]-$$ $$-F\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}+Tg\lambda.l\frac{\{1+\sqrt{1-p^2\,Sin^2\lambda}\}\sqrt{1-p^2}}{\{1+\sqrt{1-p^2}\}\sqrt{1-p^2\,Sin^2\lambda}}\Big]$$

V. T. 208, N. 10 et T. 344, N. 14.

5) $$\int Arctg\{Tg\lambda.\sqrt{1-p^2\,Sin^2x}\}.\frac{x\,Sin\,2x}{\sqrt{1-p^2\,Sin^2x}}dx=\frac{\pi}{p^2}\Big[E(p,\lambda)-Cot\lambda.\{1-\sqrt{1-p^2\,Sin^2\lambda}\}-$$ $$-\sqrt{1-p^2}.Arctg[Tg\lambda.\sqrt{1-p^2}]+Cot\lambda.l\frac{2\sqrt{1-p^2\,Sin^2\lambda}}{1+\sqrt{1-p^2\,Sin^2\lambda}}\Big]$$

V. T. 207, N. 2 et T. 341, N. 12.

F. Algébrique;
Circulaire Directe;
Circulaire Inverse.

TABLE 457, suite.

Lim. 0 et $\frac{\pi}{2}$.

6) $\int Arctg\left\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\right\} \frac{x Sin 2x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{\pi}{p^2}\left[\frac{1}{\sqrt{1-p^2}} Arctg[Tg\lambda . \sqrt{1-p^2}] - \right.$

$\left. - F(p,\lambda) + Tg\lambda . l \frac{\{1+\sqrt{1-p^2}\}\sqrt{1-p^2 Sin^2\lambda}}{\{1+\sqrt{1-p^2 Sin^2\lambda}\}\sqrt{1-p^2}}\right]$ V. T. 208, N. 10 et T. 344, N. 3.

7) $\int Arctg\left(q\, Tg\, x\right) \frac{x\,dx}{Sin^2 x} = \frac{\pi}{2q}\left\{l(1+q) + q\,l\frac{1+q}{q}\right\}$ V. T. 247, N. 8.

F. Algébrique;
Circulaire Directe;
Circulaire Inverse; $[p^2 < 1, 0 < q < 1]$.

TABLE 458.

Lim. 0 et π

1) $\int Arctg\left(\frac{p\,Sin\,x}{1-p\,Cos\,x}\right) . Sin\,a\,x . x^{2b} dx = \frac{(-1)^b \pi p^a}{2a^{2b+1}} 1^{2b/1} \sum_0^{2b} \frac{(-a\,lp)^n}{1^{n/1}}$ (IV, 553).

2) $\int Arctg\left(\frac{p\,Sin\,x}{1-p\,Cos\,x}\right) . Cos\,a\,x . x^{2b-1} dx = \frac{(-1)^b \pi p^a}{2a^{2b}} 1^{2b-1/1} \sum_0^{2b-1} \frac{(-a\,lp)^n}{1^{n/1}}$ (IV, 553).

3) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right) . Sin\,2\,a\,x . x^{2b} dx = 0$ V. T. 458, N. 1.

4) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right) . Sin\{(2a-1)x\} . x^{2b} dx = \frac{(-1)^b \pi p^{2a-1}}{2^{2b}(2a-1)^{2b+1}} 1^{2b/1} \sum_0^{2b} \frac{\{-(2a-1)\,lp\}^n}{1^{n/1}}$
V. T. 458, N. 1.

5) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right) . Cos\,2\,a\,x . x^{2b-1} dx = 0$ V. T. 458, N. 2.

6) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right) . Cos\{(2a-1)x\} . x^{2b-1} dx = \frac{(-1)^{b-1} \pi p^{2a-1}}{2^{2b-1}(2a-1)^{2b}} 1^{2b-1/1} \sum_0^{2b-1} \frac{\{-(2a-1)\,lp\}^n}{1^{n/1}}$
V. T. 458, N. 2.

7) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right) . Sin\{(2a-1)x\} . Sin\,x . x^{2b-1} dx = 0$ V. T. 458, N. 5.

8) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right) . Sin\{(2a-1)x\} . Cos\,x . x^{2b} dx = 0$ V. T. 458, N. 3.

9) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right) . Cos\{(2a-1)x\} . Sin\,x . x^{2b} dx = 0$ V. T. 458, N. 3.

10) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right) . Cos\{(2a-1)x\} . Cos\,x . x^{2b-1} dx = 0$ V. T. 458, N. 5.

F. Algébrique;
Circulaire Directe; TABLE 458, suite. Lim. 0 et π.
Circulaire Inverse; $[p^2<1, 0<q<1]$.

11) $\int Arctg\left(\frac{q\,Sin\,2x}{1-q\,Cos\,2x}\right).Sin\,2ax.x^{2b}\,dx = \frac{(-1)^b \pi q^a}{2^{2b} a^{2b+1}} 1^{2b/1} \sum_0^{2b} \frac{(-alq)^n}{1^{n/1}}$ V. T. 458, N. 1.

12) $\int Arctg\left(\frac{q\,Sin\,2x}{1-q\,Cos\,2x}\right).Sin\{(2a-1)x\}.x^{2b}\,dx = 0$ V. T. 458, N. 1.

13) $\int Arctg\left(\frac{q\,Sin\,2x}{1-q\,Cos\,2x}\right).Cos\,2ax.x^{2b-1}\,dx = \frac{(-1)^b \pi q^a}{2^{2b-1} a^{2b}} 1^{2b-1/1} \sum_0^{2b-1} \frac{(-alq)^n}{1^{n/1}}$ V. T. 458, N.

14) $\int Arctg\left(\frac{q\,Sin\,2x}{1-q\,Cos\,2x}\right).Cos\{(2a-1)x\}.x^{2b-1}\,dx = 0$ V. T. 458, N. 2.

15) $\int Arctg\left(\frac{q\,Sin\,2x}{1-q\,Cos\,2x}\right).Sin\,2ax.Sin\,x.x^{2b-1}\,dx = 0$ V. T. 458, N. 14.

16) $\int Arctg\left(\frac{q\,Sin\,2x}{1-q\,Cos\,2x}\right).Sin\,2ax.Cos\,x.x^{2b}\,dx = 0$ V. T. 458, N. 12.

17) $\int Arctg\left(\frac{q\,Sin\,2x}{1-q\,Cos\,2x}\right).Cos\,2ax.Sin\,x.x^{2b}\,dx = 0$ V. T. 458, N. 12.

18) $\int Arctg\left(\frac{q\,Sin\,2x}{1-q\,Cos\,2x}\right).Cos\,2ax.Cos\,x.x^{2b-1}\,dx = 0$ V. T. 458, N. 14.

F. Algébrique;
Circulaire Directe; TABLE 459. Lim. diverses
Circulaire Inverse.

1) $\int_0^1 Sin\left(a\,Arctg\frac{x}{q}\right)\frac{dx}{(q^2+x^2)^{\frac{1}{2}a}} = \frac{1}{(a-1)q^{a-1}} - \frac{Cos\{(a-1)\,Arccotg\,q\}}{(a-1)(1+q^2)^{\frac{1}{2}(a-1)}}$

2) $\int_0^1 Cos\left(a\,Arctg\frac{x}{q}\right)\frac{dx}{(q^2+x^2)^{\frac{1}{2}a}} = \frac{1}{(a-1)(1+q^2)^{\frac{1}{2}(a-1)}} Sin\{(a-1)\,Arccotg\,q\}$

Sur 1) et 2) v. Lindmann, Gr. Arch. 38, 246.

F. Alg. rat. fract. à dén. q^2+x^2;
Circ. Dir. à un ou trois facteurs; TABLE 460. Lim. 0 et c
Autre Fonction.

1) $\int Si(rx).Sin\,px\frac{dx}{q^2+x^2} = \frac{\pi}{4q}e^{-pq}\{Ei(qr)-Ei(-qr)\}\,[p\geqq r], = \frac{\pi}{4q}[e^{-pq}\{Ei(pq) - Ei(-qr)\} - e^{pq}\{Ei(-pq)-Ei(-qr)\}]\,[p\leqq r]$ (VIII, 46

2) $\int Si(rx).\,Cos\,px\,\frac{x\,dx}{q^2+x^2} = -\frac{\pi}{4}e^{-pq}\left\{Ei(qr)-Ei(-qr)\right\}[p>r], = -\frac{\pi}{4}\left[e^{-pq}\left\{Ei(pq)-Ei(-qr)\right\}+e^{pq}\left\{Ei(-pq)-Ei(-qr)\right\}\right][p<r]$ (VIII, 467).

3) $\int Ci(rx).\,Sin\,px\,\frac{x\,dx}{q^2+x^2} = -\frac{\pi}{4}(e^{pq}-e^{-pq})Ei(-qr)[p<r], = \frac{\pi}{4}\left[e^{-pq}\left\{Ei(qr)+Ei(-qr)-Ei(pq)\right\}-e^{pq}Ei(-pq)\right][p>r]$ (VIII, 468).

4) $\int Ci(rx).\,Cos\,px\,\frac{dx}{q^2+x^2} = \frac{\pi}{4q}(e^{pq}+e^{-pq})Ei(-qr)[p\leqq r], = \frac{\pi}{4q}\left[e^{-pq}\left\{Ei(qr)+Ei(-qr)-Ei(pq)\right\}+e^{pq}Ei(-pq)\right][p\geqq r]$ (VIII, 468).

5) $\int Si(rx).\,Cos\,rx\,\frac{x\,dx}{q^2+x^2} = \frac{\pi}{4}e^{-qr}\left\{Ei(-qr)-Ei(qr)\right\}$ (VIII, 467).

6) $\int Ci(rx).\,Sin\,rx\,\frac{x\,dx}{q^2+x^2} = \frac{\pi}{4}(e^{-qr}-e^{qr})Ei(-qr)$ (VIII, 468).

7) $\int Si(x).\,Sin\,srx.\,Sin\left\{(s-1)rx\right\}.\,Cosec\,rx\,\frac{dx}{q^2+x^2} = \frac{\pi}{4q}\left\{Ei(q)-Ei(-q)\right\}\frac{e^{-2qr}-e^{-2sqr}}{1-e^{-2qr}}$ (VIII, 660).

8) $\int Si(x).\,Sin\,srx.\,Cos\left\{(s-1)rx\right\}.\,Cosec\,rx\,\frac{x\,dx}{q^2+x^2} = \frac{\pi}{4}\left\{Ei(-q)-Ei(q)\right\}\frac{1-e^{-2sqr}}{1-e^{-2qr}}$ (VIII, 660).

9) $\int Ci(x).\,Sin\,srx.\,Sin\left\{(s-1)rx\right\}.\,Cosec\,rx\,\frac{x\,dx}{q^2+x^2} = \frac{\pi}{4}Ei(-q)\frac{1+e^{-2qr}-e^{(s-1)2qr}-e^{-2sqr}}{1-e^{-2qr}}$ (VIII, 660).

10) $\int Ci(x).\,Sin\,srx.\,Cos\left\{(s-1)rx\right\}.\,Cosec\,rx\,\frac{dx}{q^2+x^2} = \frac{\pi}{4q}Ei(-q)\frac{1-e^{-2qr}+e^{(s-1)2qr}-e^{-2sqr}}{1-e^{-2qr}}$ (VIII, 660).

11) $\int Si(x).\,Sin\,2srx.\,Cos\left\{(2s+1)rx\right\}.\,Sec\,rx\,\frac{dx}{q^2+x^2} = \frac{\pi}{4q}\left\{Ei(q)-Ei(-q)\right\}\frac{e^{-(2s+1)2qr}-e^{-2qr}}{1+e^{-2qr}}$ (VIII, 661).

12) $\int Si(x).\,Cos\,2srx.\,Cos\left\{(2s+1)rx\right\}.\,Sec\,rx\,\frac{x\,dx}{q^2+x^2} = \frac{\pi}{4}\left\{Ei(-q)-Ei(q)\right\}\frac{1+e^{-(2s+1)2qr}}{1+e^{-2qr}}$ (VIII, 661).

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F. Alg. rat. fract. à dén. q^2+x^2;
Circ. Dir. à un ou trois facteurs; TABLE 460, suite. Lim. 0 et ∞.
Autre Fonction.

13) $\int Ci(x).Sin\,2sr x.Cos\{(2s+1)rx\}.Sec\,rx\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4}Ei(-q)\frac{1-e^{-2qr}-e^{4sqr}+e^{-(2s+1)2qr}}{1+e^{-2qr}}$ (VIII, 661).

14) $\int Ci(x).Cos\,2sr x.Cos\{(2s+1)rx\}.Sec\,rx\frac{dx}{q^2+x^2}=\frac{\pi}{4q}Ei(-q)\frac{1+e^{-2qr}+e^{4sqr}+e^{-(2s+1)2qr}}{1+e^{-2qr}}$ (VIII, 661).

F. Alg. rat. fract. à dén. q^2+x^2;
Circ. Dir. à deux facteurs; TABLE 461. Lim. 0 et ∞.
Autre Fonction.

1) $\int Si(x).Sin\,4sr x.Tg\,rx\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4}\left[2Ei(-q)-\{Ei(q)-Ei(-q)\}\frac{2-e^{-4sqr}+e^{-(2s+1)2qr}}{1+e^{-2qr}}\right]$ (VIII, 663).

2) $\int Si(x).Sin^2 2sr x.Tg\,rx\frac{dx}{q^2+x^2}=\frac{\pi}{8q}\{Ei(-q)-Ei(q)\}\frac{2e^{-2qr}+e^{-4sqr}-e^{-(2s+1)2qr}}{1+e^{-2qr}}$ (VIII, 663).

3) $\int Ci(x).Sin\,4sr x.Tg\,rx\frac{dx}{q^2+x^2}=\frac{\pi}{4q}Ei(-q).(e^{-4sqr}-e^{4sqr})\frac{1-e^{-2qr}}{1+e^{-2qr}}$ (VIII, 663).

4) $\int Ci(x).Sin^2 2sr x.Tg\,rx\frac{x\,dx}{q^2+x^2}=\frac{\pi}{8}Ei(-q).\{-2+e^{4sqr}+e^{-4sqr})\frac{1-e^{-2qr}}{1+e^{-2qr}}$ (VIII, 663).

5) $\int Si(x).Sin\,2sr x.Cot\,rx\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4}\left[\{Ei(-q)-Ei(q)\}\frac{2-e^{-2sqr}+e^{-(s+1)2qr}}{1-e^{-2qr}}-2Ei(-q)\right]$ (VIII, 662).

6) $\int Si(x).Sin^2 sr x.Cot\,rx\frac{dx}{q^2+x^2}=\frac{\pi}{8q}\{Ei(q)-Ei(-q)\}\frac{2e^{-2qr}-e^{-2sqr}-e^{-(s+1)2qr}}{1-e^{-2qr}}$ (VIII, 662).

7) $\int Ci(x).Sin\,2sr x.Cot\,rx\frac{dx}{q^2+x^2}=\frac{\pi}{4q}Ei(-q).(e^{2sqr}-e^{-2sqr})\frac{1+e^{-2qr}}{1-e^{-2qr}}$ (VIII, 662).

8) $\int Ci(x).Sin^2 sr x.Cot\,rx\frac{x\,dx}{q^2+x^2}=\frac{\pi}{8}Ei(-q).(2-e^{2sqr}-e^{-2sqr})\frac{1+e^{-2qr}}{1-e^{-2qr}}$ (VIII, 662).

9) $\int Si(x).Sin\,2sr x.Cosec\,rx\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}\{Ei(-q)-Ei(q)\}\frac{1-e^{-2sqr}}{e^{qr}-e^{-qr}}$ (VIII, 663).

10) $\int Si(x).Sin^2 sr x.Cosec\,rx\frac{dx}{q^2+x^2}=\frac{\pi}{4q}\{Ei(q)-Ei(-q)\}\frac{1-e^{-2sqr}}{e^{qr}-e^{-qr}}$ (VIII, 663).

11) $\int Ci(x).\,Sin\,2srx.\,Cosec\,rx\,\frac{dx}{q^2+x^2}=\frac{\pi}{2q}\,Ei(-q)\,\frac{e^{2sqr}-e^{-2sqr}}{e^{qr}-e^{-qr}}$ (VIII, 663).

12) $\int Ci(x).\,Sin^2\,srx.\,Cosec\,rx\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4}\,Ei(-q)\,\frac{2-e^{2sqr}-e^{-2sqr}}{e^{qr}-e^{-qr}}$ (VIII, 663).

13) $\int Si(x).\,Cos^s\,rx.\,Sin\,srx\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+2}q}\,\{Ei(q)-Ei(-q)\}\,\{(1+e^{-2qr})^s-1\}$ (VIII, 645).

14) $\int Si(x).\,Cos^s\,rx.\,Cos\,srx\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+2}}\,\{Ei(-q)-Ei(q)\}\,(1+e^{-2qr})^s$ (VIII, 644).

15) $\int Ci(x).\,Cos^s\,rx.\,Sin\,srx\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+2}}\,Ei(-q).(e^{-sqr}-e^{sqr})(e^{qr}+e^{-qr})^s$ (VIII, 645).

16) $\int Ci(x).\,Cos^s\,rx.\,Cos\,srx\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+2}q}\,Ei(-q).(e^{sqr}+e^{-sqr})(e^{qr}+e^{-qr})^s$ (VIII, 644).

17) $\int Si(x).\,Sin^s\,rx.\,Sin\left(\frac{1}{2}s\pi-srx\right)\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+2}q}\,\{Ei(-q)-Ei(q)\}\,\{(1-e^{-2qr})^s-1\}$
(VIII, 647).

18) $\int Si(x).\,Sin^s\,rx.\,Cos\left(\frac{1}{2}s\pi-srx\right)\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+2}}\,\{Ei(-q)-Ei(q)\}\,(1-e^{-2qr})^s$
(VIII, 646).

19) $\int Ci(x).\,Sin^s rx.\,Sin\left(\frac{1}{2}s\pi-srx\right)\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+2}}\,Ei(-q).\{(-1)^s e^{sqr}-e^{-sqr}\}(e^{qr}-e^{-qr})^s$
(VIII, 647).

20) $\int Ci(x).\,Sin^s rx.\,Cos\left(\frac{1}{2}s\pi-srx\right)\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+2}q}\,Ei(-q).\{(-1)^s e^{sqr}+e^{-sqr}\}(e^{qr}-e^{-qr})^s$
(VIII, 646).

21) $\int Si(x).\,Cos^s\,rx.\,Sin\,tx\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+2}q}\,\{Ei(q)-Ei(-q)\}\,(e^{qr}+e^{-qr})^s\,e^{-qt}$ (VIII, 653).

22) $\int Si(x).\,Cos^s\,rx.\,Cos\,tx\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+2}}\,\{Ei(-q)-Ei(q)\}\,(e^{qr}+e^{-qr})^s\,e^{-qt}$ (VIII, 653).

23) $\int Ci(x).\,Cos^s\,rx.\,Sin\,tx\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+2}}\,Ei(-q).(e^{-qt}-e^{qt})(e^{qr}+e^{-qr})^s$ (VIII, 653).

24) $\int Ci(x).\,Cos^s\,rx.\,Cos\,tx\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+2}q}\,Ei(-q).(e^{qt}+e^{-qt})(e^{qr}+e^{-qr})^s$ (VIII, 653).

25) $\int Si(x).\,Sin^s\,rx.\,Sin\left(\frac{1}{2}s\pi-tx\right)\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+2}q}\,\{Ei(-q)-Ei(q)\}\,(e^{qr}-e^{-qr})^s e^{-qt}$
(VIII, 656).

26) $\int Si(x).Sin^s rx.Cos\left(\frac{1}{2}s\pi - tx\right)\frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{s+2}}\{Ei(-q)-Ei(q)\}(e^{qr}-e^{-qr})^s e^{-qt}$ (VIII, 655).

27) $\int Ci(x).Sin^s rx.Sin\left(\frac{1}{2}s\pi - tx\right)\frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{s+1}}Ei(-q).\{(-1)^s e^{qt}-e^{-qt}\}(e^{qr}-e^{-qr})^s$ (VIII, 656).

28) $\int Ci(x).Sin^s rx.Cos\left(\frac{1}{2}s\pi - tx\right)\frac{dx}{q^2+x^2} = \frac{\pi}{2^{s+2}q}Ei(-q).\{(-1)^s e^{qt}+e^{-qt}\}(e^{qr}-e^{-qr})^s$ (VIII, 656).

[Dans 21) à 28) on a $t > sr$].

F. Alg. rat. fract. à dén. q^2+x^2;
Circ. Dir. à plusieurs facteurs; TABLE 462. Lim. 0 et ∞.
Autre Fonction.

1) $\int Si(x).Cos^s rx.Cos^{s_1} r_1 x \ldots Sin\{(sr+s_1r_1+\ldots)x\}\frac{dx}{q^2+x^2} = \frac{\pi}{2^{2+s+s_1+\ldots}q}\{Ei(q)-$
$-Ei(-q)\}\{(1+e^{-2qr})^s(1+e^{-2qr_1})^{s_1}\ldots-1\}$ (VIII, 645).

2) $\int Si(x).Cos^s rx.Cos^{s_1} r_1 x \ldots Cos\{(sr+s_1r_1+\ldots)x\}\frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{2+s+s_1+\ldots}}\{Ei(-q)-$
$-Ei(q)\}(1+e^{-2qr})^s(1+e^{-2qr_1})^{s_1}\ldots$ (VIII, 645).

3) $\int Ci(x).Cos^s rx.Cos^{s_1} r_1 x \ldots Sin\{(sr+s_1r_1+\ldots)x\}\frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{2+s+s_1+\ldots}}Ei(-q).$
$\{e^{-(sr+s_1r_1+\ldots)q}-e^{(sr+s_1r_1+\ldots)q}\}(e^{qr}+e^{-qr})^s(e^{qr_1}+e^{-qr_1})^{s_1}\ldots$ (VIII, 646).

4) $\int Ci(x).Cos^s rx.Cos^{s_1} r_1 x \ldots Cos\{(sr+s_1r_1+\ldots)x\}\frac{dx}{q^2+x^2} = \frac{\pi}{2^{2+s+s_1+\ldots}q}Ei(-q).$
$\{e^{(sr+s_1r_1+\ldots)q}+e^{-(sr+s_1r_1+\ldots)q}\}(e^{qr}+e^{-qr})^s(e^{qr_1}+e^{-qr_1})^{s_1}\ldots$ (VIII, 645).

5) $\int Si(x).Sin^s rx.Sin^{s_1} r_1 x \ldots Sin\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots)x\}\frac{dx}{q^2+x^2} =$
$=\frac{\pi}{2^{2+s+s_1+\ldots}q}\{Ei(-q)-Ei(q)\}\{(1-e^{-2qr})^s(1-e^{-2qr_1})^{s_1}\ldots-1\}$ (VIII, 648).

6) $\int Si(x).Sin^s rx.Sin^{s_1} r_1 x \ldots Cos\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots)x\}\frac{x\,dx}{q^2+x^2} =$
$=\frac{\pi}{2^{2+s+s_1+\ldots}}\{Ei(-q)-Ei(q)\}(1-e^{-2qr})^s(1-e^{-2qr_1})^{s_1}\ldots$ (VIII, 647).

7) $\int Ci(x).Sin^s rx.Sin^{s_1} r_1 x \ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots)x\right\}\frac{x\,dx}{q^2+x^2}=$

$=\frac{\pi}{2^{2+s+s_1+\ldots}}Ei(-q).\left\{(-1)^{s+s_1+\ldots}e^{(sr+s_1r_1+\ldots)q}-e^{-(sr+s_1r_1+\ldots)q}\right\}(e^{qr}-e^{-qr})^s$
$(e^{qr_1}-e^{-qr_1})^{s_1}\ldots$ (VIII, 648).

8) $\int Ci(x).Sin^s rx.Sin^{s_1} r_1 x \ldots Cos\left\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots)x\right\}\frac{dx}{q^2+x^2}=$

$=\frac{\pi}{2^{2+s+s_1+\ldots}q}Ei(-q).\left\{(-1)^{s+s_1+\ldots}e^{(sr+s_1r_1+\ldots)q}+e^{-(sr+s_1r_1+\ldots)q}\right\}(e^{qr}-e^{-qr})^s$
$(e^{qr_1}-e^{-qr_1})^{s_1}\ldots$ (VIII, 647).

9) $\int Si(x).Cos^s rx\ldots Sin^t ux\ldots Sin\left\{(t+\ldots)\frac{1}{2}\pi-(sr+\ldots+tu+\ldots)x\right\}\frac{dx}{q^2+x^2}=$

$=\frac{\pi}{2^{2+s+\ldots+t+\ldots}q}\{Ei(-q)-Ei(q)\}\{(1+e^{-2qr})^s\ldots(1-e^{-2qu})^t\ldots-1\}$ (VIII, 648).

10) $\int Si(x).Cos^s rx\ldots Sin^t ux\ldots Cos\left\{(t+\ldots)\frac{1}{2}\pi-(sr+\ldots+tu+\ldots)x\right\}\frac{x\,dx}{q^2+x^2}=$

$=\frac{\pi}{2^{2+s+\ldots+t+\ldots}}\{Ei(-q)-Ei(q)\}(1+e^{-2qr})^s\ldots(1-e^{-2qu})^t\ldots$ (VIII, 648).

11) $\int Ci(x).Cos^s rx\ldots Sin^t ux\ldots Sin\left\{(t+\ldots)\frac{1}{2}\pi-(sr+\ldots+tu+\ldots)x\right\}\frac{x\,dx}{q^2+x^2}=$

$=\frac{\pi}{2^{2+s+\ldots+t+\ldots}}Ei(-q).\left\{(-1)^{t+\ldots}e^{(sr+\ldots+tu+\ldots)q}-e^{-(sr+\ldots+tu+\ldots)q}\right\}(e^{qr}+e^{-qr})^s\ldots$
$(e^{qu}-e^{-qu})^t\ldots$ (VIII, 649).

12) $\int Ci(x).Cos^s rx\ldots Sin^t ux\ldots Cos\left\{(t+\ldots)\frac{1}{2}\pi-(sr+\ldots+tu+\ldots)x\right\}\frac{dx}{q^2+x^2}=$

$=\frac{\pi}{2^{2+s+\ldots+t+\ldots}q}Ei(-q).\left\{(-1)^{t+\ldots}e^{(sr+\ldots+tu+\ldots)q}+e^{-(sr+\ldots+tu+\ldots)q}\right\}(e^{qr}+e^{-qr})^s\ldots$
$(e^{qu}-e^{-qu})^t\ldots$ (VIII, 648).

F. Alg. rat. fract. à dén. q^2-x^2;
Circ. Dir. à un ou deux facteurs; TABLE 463. Lim. 0 et ∞.
Autre Fonction.

1) $\int Si(rx).Sin px\frac{dx}{q^2-x^2}=-\frac{\pi}{2q}Cos pq.Si(qr)\,[p\geqq r],=-\frac{\pi}{2q}Cos pq.Si(pq)+$
$+\frac{\pi}{2q}Sin pq.\{Ci(pq)-Ci(qr)\}\,[p\leqq r]$ (VIII, 461).

2) $\int Si(rx).Cos\,px\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}Sin\,pq.Si(qr)\,[p>r],=\frac{\pi}{2}Sin\,pq.Si(pq)-$
$-\frac{\pi}{2}Cos\,pq.\{Ci(qr)-Ci(pq)\}\,[p<r]$ (VIII, 469).

3) $\int Si(rx).Cos\,rx\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}Sin\,qr.Si(qr)$ (VIII, 469).

4) $\int Ci(rx).Sin\,px\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}Sin\,pq.\left\{\frac{\pi}{2}-Si(qr)\right\}[p<r],=\frac{\pi}{2}Cos\,pq.\{Ci(qr)-Ci(pq)\}+$
$+\frac{\pi}{2}Sin\,pq.\left\{\frac{\pi}{2}-Si(pq)\right\}[p>r]$ (VIII, 470).

5) $\int Ci(rx).Sin\,rx\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}Sin\,qr.\left\{\frac{\pi}{2}-Si(qr)\right\}$ (VIII, 470).

6) $\int Ci(rx).Cos\,px\frac{dx}{q^2-x^2}=-\frac{\pi}{2q}Cos\,pq.\left\{\frac{\pi}{2}-Si(qr)\right\}[p\leqq r],=\frac{\pi}{2q}Sin\,pq.\{Ci(qr)-Ci(pq)\}-$
$-\frac{\pi}{2q}Cos\,pq.\left\{\frac{\pi}{2}-Si(pq)\right\}[p\geqq r]$ (VIII, 462).

7) $\int Si(x).Sin\,4srx.Tg\,rx\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}Si(q).Sin^2 2sqr.Tg\,qr$ (VIII, 663).

8) $\int Si(x).Sin^2 2srx.Tg\,rx\frac{dx}{q^2-x^2}=-\frac{\pi}{4q}Si(q).\{1+Sin\,4sqr.Tg\,qr\}$ (VIII, 663).

9) $\int Si(x).Sin\,2srx.Cot\,rx\frac{x\,dx}{q^2-x^2}=\pi\,Si(q).Sin^2 sqr.Cot\,qr$ (VIII, 662).

10) $\int Si(x).Sin^2 srx.Cot\,rx\frac{dx}{q^2-x^2}=\frac{\pi}{4q}Si(q).\{1-Sin\,2sqr.Cot\,qr\}$ (VIII, 662).

11) $\int Si(x).Sin\,2srx.Cosec\,rx\frac{x\,dx}{q^2-x^2}=\pi\,Si(q).Sin^2 sqr.Cosec\,qr$ (VIII, 663).

12) $\int Si(x).Sin^2 srx.Cosec\,rx\frac{dx}{q^2-x^2}=-\frac{\pi}{4q}Si(q).Sin\,2sqr.Cosec\,qr$ (VIII, 663).

13) $\int Si(x).Cos^s rx.Sin\,srx\frac{dx}{q^2-x^2}=\frac{\pi}{2q}Si(q).\{2^{-s}-Cos^s qr.Cos\,sqr\}$ (VIII, 645).

14) $\int Si(x).Cos^s rx.Cos\,srx\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\{Si(q).Cos^s qr.Sin\,sqr-2^{-s}Ci(q)\}$ (VIII, 645).

15) $\int Si(x).Sin^s rx.Sin\left\{\frac{1}{2}s\pi-srx\right\}\frac{dx}{q^2-x^2}=\frac{\pi}{2q}Si(q).\left\{-2^{-s}+Sin^s qr.Cos\left(\frac{1}{2}s\pi-sqr\right)\right\}$
(VIII, 647).

16) $\int Si(x).Sin^s rx.Cos\left\{\frac{1}{2}s\pi - srx\right\}\frac{xdx}{q^2-x^2} = -\frac{\pi}{2}\left\{2^{-s}Ci(q)+Si(q).Sin^s qr.Sin\left(\frac{1}{2}s\pi - sqr\right)\right\}$ (VIII, 647).

17) $\int Si(x).Cos^s rx.Sin\,tx\frac{dx}{q^2-x^2} = -\frac{\pi}{2q}Si(q).Cos^s qr.Cos\,qt$ (VIII, 653).

18) $\int Si(x).Cos^s rx.Cos\,tx\frac{xdx}{q^2-x^2} = \frac{\pi}{2}Si(q).Cos^s qr.Sin\,qt$ (VIII, 653).

19) $\int Si(x).Sin^s rx.Sin\left(\frac{1}{2}s\pi - tx\right)\frac{dx}{q^2-x^2} = \frac{\pi}{2q}Si(q).Sin^s qr.Cos\left(\frac{1}{2}s\pi - qt\right)$ (VIII, 656).

20) $\int Si(x).Sin^s rx.Cos\left(\frac{1}{2}s\pi - tx\right)\frac{xdx}{q^2-x^2} = -\frac{\pi}{2}Si(q).Sin^s qr.Sin\left(\frac{1}{2}s\pi - qt\right)$ (VIII, 656).

[Dans 17) à 20) on a $t > sr$].

F. Alg. rat. fract. à dén. q^2-x^2;
Circ. Dir. à plusieurs facteurs; TABLE 464. Lim. 0 et ∞.
Autre Fonction.

1) $\int Si(x).Sin\,srx.Sin\{(s-1)rx\}.Cosec\,rx\frac{dx}{q^2-x^2} = \frac{\pi}{4q}Si(q).\{1+Cos\,2sqr - Sin\,2sqr.Cot\,qr\}$ (VIII, 660).

2) $\int Si(x).Sin\,srx.Cos\{(s-1)rx\}.Cosec\,rx\frac{xdx}{q^2-x^2} = -\frac{\pi}{4}[Ci(q)+Si(q).\{Sin\,2sqr - (1-Cos\,2sqr)\,Cot\,qr\}]$ (VIII, 660).

3) $\int Si(x).Sin\,2srx.Cos\{(2s+1)rx\}.Sec\,rx\frac{dx}{q^2-x^2} = \frac{\pi}{4q}Si(q).\{1-Cos\,4sqr+Sin\,4sqr.Tg\,qr\}$ (VIII, 661).

4) $\int Si(x).Cos\,2srx.Cos\{(2s+1)rx\}.Sec\,rx\frac{xdx}{q^2-x^2} = \frac{\pi}{4}[Si(q).\{Sin\,4sqr - (1-Cos\,4sqr)\,Tg\,qr\} - Ci(q)]$ (VIII, 661).

5) $\int Si(x).Cos^s rx.Cos^{s_1} r_1 x\ldots Sin\{(sr+s_1r_1+\ldots)x\}\frac{dx}{q^2-x^2} = \frac{\pi}{2q}Si(q).[2^{-s-s_1-\cdots} - Cos^s qr.Cos^{s_1} qr_1\ldots Cos\{(sr+s_1r_1+\ldots)q\}]$ (VIII, 646).

6) $\int Si(x).Cos^s rx.Cos^{s_1} r_1 x\ldots Cos\{(sr+s_1r_1+\ldots)x\}\frac{xdx}{q^2-x^2} = \frac{\pi}{2}[Si(q).Cos^s qr.Cos^{s_1} qr_1\ldots Sin\{(sr+s_1r_1+\ldots)q\} - 2^{-s-s_1-\cdots}Ci(q)]$ (VIII, 646).

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7) $\int Si(x).Sin^s rx.Sin^{s_1} r_1 x\dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots)x\right\}\frac{dx}{q^2-x^2}=$
$=\frac{\pi}{2q}Si(q).\left[-2^{-s-s_1-\dots}+Sin^s qr.Sin^{s_1} qr_1\dots Cos\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots)q\right\}\right]$ (VIII, 648).

8) $\int Si(x).Sin^s rx.Sin^{s_1} r_1 x\dots Cos\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots)x\right\}\frac{x\,dx}{q^2-x^2}=$
$=-\frac{\pi}{2}\left[2^{-s-s_1-\dots}Ci(q)+Si(q).Sin^s qr.Sin^{s_1} qr_1\dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-\right.\right.$
$\left.\left.-(sr+s_1r_1+\dots)q\right\}\right]$ (VIII, 648).

9) $\int Si(x).Cos^s rx\dots Sin^t ux\dots Sin\left\{(t+\dots)\frac{1}{2}\pi-(sr+\dots+tu+\dots)x\right\}\frac{dx}{q^2-x^2}=$
$=\frac{\pi}{2q}Si(q).\left[-2^{-s-\dots-t-\dots}+Cos^s qr\dots Sin^t qu\dots Cos\left\{(t+\dots)\frac{1}{2}\pi-\right.\right.$
$\left.\left.-(sr+\dots+tu+\dots)q\right\}\right]$ (VIII, 649).

10) $\int Si(x).Cos^s rx\dots Sin^t ux\dots Cos\left\{(t+\dots)\frac{1}{2}\pi-(sr+\dots+tu+\dots)x\right\}\frac{x\,dx}{q^2-x^2}=$
$=-\frac{\pi}{2}\left[2^{-s-\dots-t-\dots}Ci(q)+Si(q).Cos^s qr\dots Sin^t qu\dots Sin\left\{(t+\dots)\frac{1}{2}\pi-\right.\right.$
$\left.\left.-(sr+\dots+tu+\dots)q\right\}\right]$ (VIII, 649).

F. Algébrique;
Circulaire Directe; TABLE 465. Lim. 0 et ∞.
Autre Fonction. Autre forme; $[p^2<1]$.

1) $\int Si(x)\frac{Sin\,rx-p^{s-1}Sin\,srx+p^s\,Sin\{(s-1)rx\}}{1-2p\,Cos\,rx+p^2}\frac{dx}{q^2+x^2}=\frac{\pi}{4q}\{Ei(q)-$
$-Ei(-q)\}\frac{e^{-qr}-p^{s-1}e^{-sqr}}{1-pe^{-qr}}$ (VIII, 664).

2) $\int Si(x)\frac{1-p\,Cos\,rx-p^s\,Cos\,srx+p^{s+1}Cos\{(s-1)rx\}}{1-2p\,Cos\,rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4}\{Ei(-q)-$
$-Ei(q)\}\frac{1-p^s e^{-sqr}}{1-pe^{-qr}}$ (VIII, 664).

F. Algébrique;
Circulaire Directe; **TABLE 465, suite.** Lim. 0 et ∞.
Autre Fonction. Autre forme; $[p^2 < 1]$.

3) $\int Ci(x) \frac{Sin\, rx - p^{s-1} Sin\, srx + p^s Sin\{(s-1)rx\}}{1-2p Cos\, rx + p^2} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{4p} Ei(-q) . \left\{ \frac{1-p^s e^{-sqr}}{1-pe^{-qr}} - \right.$

$\left. - \frac{1-p^s e^{sqr}}{1-pe^{qr}} \right\}$ (VIII, 664).

4) $\int Ci(x) \frac{1 - p\, Cos\, rx - p^s\, Cos\, srx + p^{s+1} Cos\{(s-1)rx\}}{1-2p Cos\, rx + p^2} \frac{dx}{q^2+x^2} = \frac{\pi}{4q} Ei(-q) .$

$\left\{ \frac{1-p^s e^{sqr}}{1-pe^{qr}} + \frac{1-p^s e^{-sqr}}{1-pe^{-qr}} \right\}$ (VIII, 664).

5) $\int Si(x) \frac{Sin\, rx - p^{s-1} Sin\, srx + p^s Sin\{(s-1)rx\}}{1-2p Cos\, rx + p^2} \frac{dx}{q^2-x^2} = \frac{\pi}{2q} Si(q) .$

$\frac{p - Cos\, qr + p^{s-1} Cos\, sqr - p^s\, Cos\{(s-1)qr\}}{1-2p Cos\, qr + p^2}$ (VIII, 664).

6) $\int Si(x) \frac{1 - p\, Cos\, rx - p^s\, Cos\, srx + p^{s+1} Cos\{(s-1)rx\}}{1-2p Cos\, rx + p^2} \frac{x\,dx}{q^2-x^2} = \frac{\pi}{2} \left\{ -Ci(q) + p\, Si(q) . \right.$

$\left. \frac{Sin\, qr - p^{s-1} Sin\, sqr + p^s Sin\{(s-1)qr\}}{1-2p Cos\, qr + p^2} \right\}$ (VIII, 664).

7) $\int \mathrm{T}(p, x) \frac{Sin\, x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{\pi}{12} \mathrm{F}' \{ \sqrt{1-p^2} \} + \frac{1}{6} \mathrm{E}'(p) . [\mathrm{F}'(p)]^2 - \frac{1}{6} \mathrm{F}'(p) . l \frac{4(1-p^2)}{p}$

(VIII, 417).

8) $\int \mathrm{T}(p, x) \frac{Tg\, x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{\pi}{12} \mathrm{F}' \{ \sqrt{1-p^2} \} + \frac{1}{6} \mathrm{E}'(p) . [\mathrm{F}'(p)]^2 - \frac{1}{6} \mathrm{F}'(p) . l \frac{4(1-p^2)}{p}$

(VIII, 417).

9) $\int \mathrm{T}(p, 2x) \frac{Tg\, x}{\sqrt{1-p^2 Sin^2 2x}} \frac{dx}{x} = \frac{\pi}{12} \mathrm{F}' \{ \sqrt{1-p^2} \} + \frac{1}{6} \mathrm{E}'(p) . [\mathrm{F}'(p)]^2 - \frac{1}{6} \mathrm{F}'(p) . l \frac{4(1-p^2)}{p}$

(VIII, 417).

F. Algébrique;
Circulaire Inverse; **TABLE 466.** Lim. diverses.
Autre Fonction.

1) $\int_0^1 \mathrm{F}(p, Arcsin\, x) \frac{x\,dx}{1+px^2} = \frac{1}{4p} \mathrm{F}'(p) . l \frac{(1+p)\sqrt{p}}{2} + \frac{\pi}{16p} \mathrm{F}' \{ \sqrt{1-p^2} \}$ (VIII, 548).

2) $\int_0^1 \mathrm{F}(p, Arcsin\, x) \frac{x\,dx}{1-px^2} = \frac{1}{4p} \mathrm{F}'(p) . l \frac{2}{(1-p)\sqrt{p}} - \frac{\pi}{16p} \mathrm{F}' \{ \sqrt{1-p^2} \}$ (VIII, 548).

3) $\int_0^1 \mathrm{F}(p, Arcsin\,x) \frac{x\,dx}{1-p^2x^2} = \frac{1}{8p}\mathrm{F}'(p).\,l\,\frac{1+p}{1-p}$ (VIII, 548).

4) $\int_0^1 \mathrm{F}(p, Arcsin\,x) \frac{x^2\,dx}{1-p^2x^2} = \frac{1}{8p^2}\mathrm{F}'(p).\,l\,\frac{4}{(1-p^2)p} - \frac{\pi}{16p^2}\mathrm{F}'\{\sqrt{1-p^2}\}$ (VIII, 548).

5) $\int_0^1 \mathrm{F}(p, Arcsin\,x) \frac{x\,dx}{1-x^2+x^2\sqrt{1-p^2}} = \frac{1}{4}\,\frac{\mathrm{F}'(p)}{1-\sqrt{1-p^2}}\,l\,\frac{2}{(1+\sqrt{1-p^2})\sqrt[4]{1-p^2}}$ (VIII, 548).

6) $\int_0^1 \mathrm{E}(p, Arcsin\,x) \frac{x\,dx}{1-p^2x^2} = \frac{1}{2p^2}\left[(2-p^2)\mathrm{F}'(p) - \left\{2+\frac{1}{2}l(1-p^2)\right\}\mathrm{E}'(p)\right]$ (VIII, 548).

7) $\int_0^1 \mathrm{F}(p, Arcsin\,x) \frac{x}{1-p^2x^2\,Sin^2\lambda}\,\frac{dx}{\sqrt{1-p^2x^2}} = \frac{1}{p^2\,Sin\,2\lambda}\left\{\pi\,\mathrm{F}(p,\lambda) - \right.$

$\left. -2\,\mathrm{F}'(p).Arctg\,[Tg\,\lambda.\sqrt{1-p^2}]\right\}$ (VIII, 548).

8) $\int_0^1 \mathrm{E}(p, Arcsin\,x) \frac{x}{1-p^2x^2\,Sin^2\lambda}\,\frac{dx}{\sqrt{1-p^2x^2}} = \frac{1}{p^2\,Sin\,2\lambda}\left\{\pi\,\mathrm{E}(p,\lambda) - \right.$

$\left. -2\,\mathrm{E}'(p).\,Arctg\,[Tg\,\lambda.\sqrt{1-p^2}] - \pi\,Cot\,\lambda.\,\{1-\sqrt{1-p^2\,Sin^2\lambda}\}\right\}$ (VIII, 548).

9) $\int_q^r \mathrm{F}\left\{\sqrt{1-q^2r^2}, Arctg\,\frac{x}{qr}\right\}\frac{dx}{\sqrt{(r^2-x^2)(x^2-q^2)}} = \frac{1}{2q}\mathrm{F}'\{\sqrt{1-q^2r^2}\}.\mathrm{F}'\left\{\sqrt{\left(1-\frac{r^2}{q^2}\right)}\right\}$
(VIII, 550).

10) $\int_q^r \mathrm{F}\left\{\sqrt{\frac{q^2r^2-1}{q^2r^2}}, Arccot\,\frac{x}{qr}\right\}\frac{dx}{\sqrt{(r^2-x^2)(x^2-q^2)}} = \frac{1}{2r}\mathrm{F}'\left\{\sqrt{\frac{q^2r^2-1}{q^2r^2}}\right\}.\mathrm{F}'\left\{\sqrt{\left(1-\frac{q^2}{r^2}\right)}\right\}$
(VIII, 550).

11) $\int_q^r \mathrm{E}\left\{\sqrt{1-q^2r^2}, Arctg\,\frac{x}{qr}\right\}\frac{dx}{\sqrt{(r^2-x^2)(x^2-q^2)}} = \frac{1}{2q}\mathrm{E}'\{\sqrt{1-q^2r^2}\}.\mathrm{F}'\left\{\sqrt{\left(1-\frac{r^2}{q^2}\right)}\right\} +$

$+\frac{1-q^2r^2}{2q(1+r^2)}\mathrm{F}'\left\{\sqrt{\left(1-\frac{r^2(1+q^2)^2}{q^2(1+r^2)^2}\right)}\right\}$ (VIII, 550).

12) $\int_q^r \mathrm{E}\left\{\sqrt{\frac{q^2r^2-1}{q^2r^2}}, Arccot\,\frac{x}{qr}\right\}\frac{dx}{\sqrt{(r^2-x^2)(x^2-q^2)}} = \frac{1}{2r}\mathrm{E}'\left\{\sqrt{\frac{q^2r^2-1}{q^2r^2}}\right\}.\mathrm{F}'\left\{\sqrt{\left(1-\frac{q^2}{r^2}\right)}\right\} -$

$-\frac{1-q^2r^2}{2q^2r(1+r^2)}\mathrm{F}'\left\{\sqrt{\left(1-\frac{r^2(1+q^2)^2}{q^2(1+r^2)^2}\right)}\right\}$ (VIII, 551).

F. Exponentielle;
Logarithmique;
Circulaire Directe.

TABLE 467.

Lim. 0 et ∞.

1) $\int e^{-px} lx . Sin\, qx dx = \frac{1}{p^2+q^2}\left\{p\, Arctg \frac{q}{p} - qA - \frac{q}{2} l(p^2+q^2)\right\}$ (IV, 563).

2) $\int e^{-px} lx . Cos\, qx dx = \frac{-1}{p^2+q^2}\left\{\frac{p}{2} l(p^2+q^2) + q\, Arctg \frac{q}{p} + pA\right\}$ (IV, 563).

3) $\int e^{-px} lx . Sin^2 qx dx = \frac{1}{p(p^2+4q^2)}\left\{2pq\, Arctg \frac{2q}{p} + \frac{1}{2}p^2 l(p^2+4q^2) - (p+4q^2) lp - 4q^2 A\right\}$
V. T. 256, N. 2 et T. 467, N. 2.

4) $\int e^{-2px} l(Sin^2 qx) . dx = -\frac{1}{p} l2 - p \sum_1^\infty \frac{1}{n} \frac{1}{p^2+n^2q^2}$ (IV, 563).

5) $\int e^{-2px} l(Cos^2 qx) . dx = -\frac{1}{p} l2 - p \sum_1^\infty \frac{(-1)^n}{n} \frac{1}{p^2+n^2q^2}$ (IV, 563).

6) $\int e^{-2px} l(Tg^2 qx) . dx = -2p \sum_1^\infty \frac{1}{2n-1} \frac{1}{p^2+(2n-1)^2q^2}$ V. T. 467, N. 4, 5.

7) $\int e^{-x^2} l(Sin^2 qx) . dx = \sqrt{\pi} . \left\{-l2 - \sum_1^\infty \frac{1}{n} e^{-(nq)^2}\right\}$ (IV, 563).

8) $\int e^{-x^2} l(Cos^2 qx) . dx = \sqrt{\pi} . \left\{-l2 - \sum_1^\infty \frac{(-1)^n}{n} e^{-(nq)^2}\right\}$ (IV, 563).

9) $\int e^{-x^2} l(Tg^2 qx) . dx = 2\sqrt{\pi} . \sum_1^\infty \frac{-1}{2n-1} e^{-(2n-1)^2 q^2}$ V. T. 467, N. 7, 8.

10) $\int e^{-x^2} l(1-2p\, Cos\, 2ax + p^2) . dx = \sqrt{\pi} . \sum_1^\infty \frac{1}{n} p^n e^{-a^2 n^2}$ (IV, 563).

11) $\int l(1-2e^{-px} Cos\, qx + e^{-2px}) . dx = -\frac{p\pi^2}{3(p^2+q^2)}$

12) $\int l(1+2e^{-px} Cos\, qx + e^{-2px}) . dx = \frac{p\pi^2}{6(p^2+q^2)}$ Sur 11) et 12) v. Bronwin Mathem. 1. 297.

F. Exponent. monôme;
Logarithmique;
Circulaire Directe entière.

TABLE 468.

Lim. 0 et $\frac{\pi}{2}$.

1) $\int l(1-e^{-2q\pi\, Tg\, x}) . dx = -\pi\left\{q(lq-1) + \frac{1}{2} l2q\pi - l\Gamma(q+1)\right\}$ V. T. 354, N. 6.

2) $\int e^{-2q\, Sec\, x} l(2\, Sec\, x - 1) . Tg\, x\, dx = \frac{1}{2}\left\{li(e^{-q})\right\}^2$ V. T. 359, N. 1.

F. Exponent. monôme; Logarithmique; Circulaire Directe entière. — TABLE 468, suite. — Lim. 0 et $\frac{\pi}{2}$.

3) $\int e^{p\, Cos 2x}\, l\, Sin x \,.\, Cos(p\, Sin 2x + 2x)\, dx = \frac{\pi}{4p}(1 - e^{-p})$ V. T. 271, N. 8.

4) $\int e^{p\, Cos 2x}\, l\, Cos x \,.\, Cos(p\, Sin 2x + 2x)\, dx = \frac{\pi}{4p}(1 - e^{p})$ V. T. 272, N. 5.

5) $\int e^{p\, Cos 2x}\, l\, Tg x \,.\, Cos(p\, Sin 2x + 2x)\, dx = \frac{\pi}{4p}(e^{p} - e^{-p})$ V. T. 278, N. 1.

6) $\int e^{p\, Cos 2x}\, l\, Tg^2\left(\frac{\pi}{4} \pm x\right) .\, Sin(p\, Sin 2x + 2x)\, dx = \pm\infty$ V. T. 278, N. 2.

F. Exponent. monôme; Logarithmique; Circulaire Directe fract. — TABLE 469. — Lim. 0 et $\frac{\pi}{2}$.

1) $\int e^{-q\, Cot x}\, l\, Sin x \frac{dx}{Sin^2 x} = \frac{1}{q}\left[Cos q . Ci(q) - Sin q . \left\{\frac{1}{2}\pi - Si(q)\right\}\right]$ V. T. 272, N. 2.

2) $\int e^{-p\, Tg^2 x}\, l\, Tg x . Tg^{2a} x \frac{2p\, Sin^2 x - (2a-1) Cos^2 x}{Sin^2 2x} dx = \frac{1}{8(2p)^{a-1}} 1^{a-1/2} \sqrt{\frac{\pi}{p}}$ V. T. 272, N. 7.

3) $\int e^{-p\, Tg^2 x}\, l\, Tg x . Tg^{2a+1} x \frac{p\, Sin^2 x - a\, Cos^2 x}{Sin^2 2x} dx = \frac{1}{2^{a+3} p^{a}} 1^{a-1/2}$ V. T. 272, N. 6.

4) $\int e^{-q(Tg^2 x + Cot^2 x)}\, l\, Tg x . Tg^{2a+1} x \frac{(2a+1) Sin 2x + 2q\, Cos 2x}{Sin^3 2x} dx = -\frac{1}{32} e^{-2q} \sqrt{\frac{\pi}{q}} .$

$\sum_{0}^{a+1} \frac{1}{(2q)^{n}} \frac{(a-n+1)^{2n/1}}{2^{n} 1^{n/1}}$ V. T. 272, N. 18.

5) $\int e^{-Tg^2 p x}\, l\, Tg x . Tg^{2p} x \frac{2\, Sin^2 p x - Cos^2 p x}{Sin^{p+1} 2x} dx = \frac{1}{2^{p+2} p^2} \sqrt{\pi}$ V. T. 272, N. 8.

6) $\int e^{-q\, Tg x}\, l\, Cos x \frac{dx}{Cos^2 x} = \frac{1}{q}\left[Ci(q) . Cos q - Sin q . \left\{\frac{\pi}{2} - Si(q)\right\}\right]$ V. T. 271, N. 8.

7) $\int e^{-p\, Tg x}\, l\, Tg^2\left(\frac{\pi}{4} \pm x\right) \frac{dx}{Cos^2 x} = \pm\frac{2}{p}\left\{e^{p} Ei(-p) - e^{-p} Ei(p)\right\}$ V. T. 272, N. 3.

8) $\int e^{-p\, Tg x}\, l\, Tg^2\left(\frac{\pi}{4} \pm x\right) \frac{p\, Sin x - Cos x}{Cos^3 x} dx = \mp 2\left\{e^{-p} Ei(p) + e^{p} Ei(-p)\right\}$ V. T. 272, N. 4.

9) $\int e^{-p\, Tg x}\, l\, Tg^2\left(\frac{\pi}{4} \pm x\right) \frac{Tg x}{Cos^2 x} dx = \mp\frac{1}{p}\left\{(1+p) e^{-p} Ei(p) - (1-p) e^{p} Ei(-p)\right\}$

V. T. 469, N. 7, 8.

10) $\int l\,Tg\,x.(p\,e^{-p\,Tg\,x}-q\,e^{-q\,Tg\,x})\frac{dx}{Cos^2 x}=l\frac{q}{p}$ V. T. 272, N. 14.

11) $\int e^{-Tg^p x}\,l\,Tg\,x.\,Tg^{q-1}x\frac{p\,Sin^p x-q\,Cos^q x}{Cos^{p+2}x}dx=\frac{1}{p}\Gamma\left(\frac{q}{p}\right)$ V. T. 272, N. 8.

12) $\int e^{2q\,Cosec\,x}\,l(2\,Cosec\,x-1)\frac{dx}{Tg\,x}=\frac{1}{2}\{li(e^{-q})\}^2$ V. T. 359, N. 1.

13) $\int e^{-p\,Cot\,x}\,l\,Tg^2\left(\frac{\pi}{4}\pm x\right)\frac{p\,Cot\,x-1}{Sin^2 x}dx=\pm 2\{e^{-p}Ei(p)+e^{p}Ei(-p)\}$ V. T. 273, N. 1.

14) $\int e^{-Tg^2 x}\,l\,Tg\,x\frac{1-Cos\,2x.Sin^2 x}{Cos^2 x.Sin^2 2x}=\frac{3}{8}\sqrt{\pi}$ V. T. 272, N. 9.

15) $\int e^{-Tg^2 x}\,l\,Sin\,2x\frac{1-Cos\,2x.Sin^2 x}{Cos^2 x.Sin^2 2x}dx=\frac{1}{8}\sqrt{\pi}$ V. T. 272, N. 10.

16) $\int e^{-q\,Tg\,x}\,l\,Tg\,x\frac{q\,Sin\,x-p\,Cos\,x}{Sin\,2x}\;\frac{Tg^p x}{Cos\,x}dx=\frac{1}{2q^p}\Gamma(p)$ V. T. 272, N. 1.

17) $\int e^{-p\,Tg\,x}\,l\,Cos\,x\frac{2\,Tg\,2x.Cos^2 x-p}{Cos^2 x.Cos\,2x}dx=\frac{1}{2}\{e^{-p}Ei(p)+e^{p}Ei(-p)\}$ V. T. 272, N. 4.

18) $\int e^{-Cot^{2p}x}\,l\,Tg\,x.(Sin^{2p}x-2\,Cos^{2p}x)\frac{dx}{Sin^{3p+1}x.Cos^{1-p}x}=\frac{1}{2p^2}\sqrt{\pi}$ V. T. 273, N. 5.

19) $\int e^{-Cot^p x}\,l\,Tg\,x\frac{q\,Sin^q x-p\,Cos^p x}{Sin^{p+q+1}x.Cos^{1-q}x}dx=\frac{1}{p}\Gamma\left(\frac{q}{p}\right)$ V. T. 273, N. 5.

20) $\int e^{-p\,Cot^2 x}\,l\,Tg\,x\frac{(2a+1)Sin^2 x-2p\,Cos^2 x}{Sin^2 2x.Tg^{2a+2}x}dx=\frac{1}{8(2p)^a}1^{a/2}\sqrt{\frac{\pi}{p}}$ V. T. 273, N. 4.

21) $\int e^{-p\,Cot^2 x}\,l\,Tg\,x\frac{q\,Sin^2 x-p\,Cos^2 x}{Sin^4 x.Tg^{2a-1}x}dx=\frac{1}{4p^a}1^{a-1/1}$ V. T. 273, N. 3.

22) $\int e^{-q(Tg^2 x+Cot^2 x)}\,l\,Tg\,x\frac{(2a+1)Sin\,2x-2q\,Cos\,2x}{Tg^{2a+1}x.Sin^2 2x}dx=-\frac{1}{32}e^{-2q}\sqrt{\frac{\pi}{q}}.$
$\sum_0^{a+1}\frac{1}{(2q)^n}\frac{(a-n+1)^{2n/1}}{2^n 1^{n/1}}$ V. T. 273, N. 6.

23) $\int e^{-q\,Cot\,x}\,l\,Tg\,x\frac{p\,Sin\,x-q\,Cos\,x}{Sin\,2x.Sin\,x.Tg^p x}dx=-\frac{1}{2q^p}\Gamma(p)$ V. T. 273, N. 2.

24) $\int e^{-q\,Tg\,x}\,l\,Tg\,x\frac{dx}{Cos\,x\sqrt{Sin\,2x}}=-(l4q+A)\sqrt{\frac{\pi}{2q}}$ V. T. 357, N. 5.

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F. Exponent. monôme; Logarithmique; Circulaire Directe fract. — TABLE 469, suite. — Lim. 0 et $\frac{\pi}{2}$.

25) $\int e^{-p\,Tg\,x}\, l(q\,Cos\,x)\frac{pq\,l(q\,Cos\,x)+2\,Cos^2 x}{Cos^2 x}\,dx = -\frac{q}{4}(lq)^2$ V. T. 354, N. 8.

26) $\int e^{-p\,Tg\,x}\, l\left(\frac{q^2\,Cos\,2x}{Cos^2 x}\right)\frac{pq\,Cos\,2x\,.\,l(q^2\,Cos\,2x\,.\,Sec^2 x)-4\,Cos^2 x}{Cos\,2x\,.\,Cos^2 x}\,dx = q\,(lq)^2$ V. T. 354, N. 9.

F. Exponent. binôme; Logarithmique; Circulaire Directe fract. — TABLE 470. — Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{l\,Cos\,x}{(e^{\pi\,Tg\,x}-e^{-\pi\,Tg\,x})^2}\frac{dx}{Cos^2 x} = \frac{1}{8\pi}(1-2\,A)$ V. T. 274, N. 7.

2) $\int \frac{l\,Cos\,x}{(e^{q\,Tg\,x}-1)^2}e^{q\,Tg\,x}\frac{dx}{Cos^2 x} = \frac{1}{2q}\left\{l\frac{2\pi}{q}-\frac{\pi}{q}+Z'\left(\frac{q+2\pi}{2\pi}\right)\right\}$ V. T. 274, N. 8.

3) $\int \frac{e^{\frac{1}{2}\pi\,Tg\,x}+e^{-\frac{1}{2}\pi\,Tg\,x}}{(e^{\frac{1}{2}\pi\,Tg\,x}-e^{-\frac{1}{2}\pi\,Tg\,x})^2}\frac{l\,Cos\,x}{Cos^2 x}\,dx = \frac{1}{2\pi}(2-\pi)$ V. T. 274, N. 5.

4) $\int \frac{e^{\frac{1}{4}\pi\,Tg\,x}+e^{-\frac{1}{4}\pi\,Tg\,x}}{(e^{\frac{1}{4}\pi\,Tg\,x}-e^{-\frac{1}{4}\pi\,Tg\,x})^2}\frac{l\,Cos\,x}{Cos^2 x}\,dx = \frac{4}{\pi}\left\{1-\frac{\pi}{2\sqrt{2}}+\frac{1}{2\sqrt{2}}\,l\frac{\sqrt{2}-1}{\sqrt{2}+1}\right\}$ V. T. 274, N. 4.

F. Exponentielle; Logarithmique; Circulaire Directe. — TABLE 471. — Lim. diverses.

1) $\int_0^{\frac{1}{4}\pi} e^{-2q\,Cot\,x}\, l(2\,Cot\,x-1)\frac{dx}{Sin\,2x} = \frac{1}{4}\{Li(e^{-q})\}^2$ V. T. 359, N. 1.

2) $\int_0^1 e^{2\pi a x i}\, l(Sin\,\pi x)\,.\,dx = -\frac{1}{2a}$ (IV, 564).

3) $\int_0^{\pi} e^{p\,Cos\,x}\, l\left(\frac{1}{2}\,Sin\,x\right).\,Cos(p\,Sin\,x+x)\,dx = -\frac{\pi}{4p}(e^{\frac{1}{2}p}-e^{-\frac{1}{2}p})^2$ V. T. 468, N. 3, 4.

4) $\int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi}(e^{px}+e^{-px})\,Sin(p\,l\,Cos\,x)\,dx = -2\pi\,Sin(p\,l\,2)$ V. T. 485, N. 14.

5) $\int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi}(e^{px}+e^{-px})\,Cos(p\,l\,Cos\,x)\,dx = 2\pi\,Cos(p\,l\,2)$ V. T. 485, N. 15.

6) $\int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi} e^{2xi-pe^{2xi}}\, l(Cos\,x)\,.\,dx = \frac{\pi}{2}\,\frac{e^p-1}{p}$ V. T. 468, N. 4.

7) $\int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi} e^{-p\,Cos^2 x}\, l(Cos\, x) . Cos(p\, Sin\, 2x - 2x)\, dx = \frac{\pi}{2p}(e^p - 1)$ V. T. 468, N. 4.

8) $\int_{-\infty}^{\infty} \left\{ \frac{l\left\{1 - \frac{2q}{e^{p(x-ri)} - e^{-p(x-ri)}}\right\}}{i\, Sin\left\{\pi(x-ri)\right\}} - \frac{l\left\{1 - \frac{2q}{e^{p(x+ri)} - e^{-p(x+ri)}}\right\}}{i\, Sin\left\{\pi(x+ri)\right\}} \right\} dx = \frac{2}{\pi}\left\{ l\frac{q\pi}{2p} - \right.$

$\left. - l\, Tg\left[\frac{\pi}{2p} l\left\{q + \sqrt{1+q^2}\right\}\right] + \sum_{-\infty}^{\infty} (-1)^n\, l\left(1 + \frac{2q}{e^{pn} - e^{-pn}}\right)\right\} [pr < \pi]$

Cauchy, C. R. 1846. 562.

F. Exponentielle; Circulaire Directe; Circulaire Inverse. TABLE 472. Lim. diverses.

1) $\int_0^1 Arctg(e^{-x}) . Sin\, px\, dx = \frac{\pi}{4p} \frac{(e^{\frac{1}{2}p\pi} - 1)^2}{e^{p\pi} + 1}$ V. T. 264, N. 14.

2) $\int_0^1 Sin\left[\lambda + Arctg\left\{Tg(x\, Cos\, \lambda)\frac{e^{2x\, Sin\lambda} - 1}{e^{2x\, Sin\lambda} + 1}\right\}\right] \sqrt{e^{2x\, Sin\lambda} + e^{-2x\, Sin\lambda} + 2\, Cos(2x\, Cos\lambda)}\, dx =$

$= (e^{-Sin\lambda} - e^{Sin\lambda})\, Cos(Cos\lambda)$ (VIII, 629).

3) $\int_0^1 Cos\left[\lambda + Arctg\left\{Tg(x\, Cos\, \lambda)\frac{e^{2x\, Sin\lambda} - 1}{e^{2x\, Sin\lambda} + 1}\right\}\right] \sqrt{e^{2x\, Sin\lambda} + e^{-2x\, Sin\lambda} + 2\, Cos(2x\, Cos\lambda)}\, dx =$

$= (e^{Sin\lambda} + e^{-Sin\lambda})\, Sin(Cos\lambda)$ (VIII, 629).

4) $\int_0^1 Sin\left[\lambda + Cos\lambda + Arctg\left\{Tg(x\, Cos\, \lambda)\frac{e^{2x\, Sin\lambda} - 1}{e^{2x\, Sin\lambda} + 1}\right\}\right] \sqrt{e^{2x\, Sin\lambda} + e^{-2x\, Sin\lambda} + 2\, Cos(2x\, Cos\lambda)}\, dx =$

$= e^{-Sin\lambda} - e^{Sin\lambda}\, Cos(2\, Cos\lambda)$ V. T. 472, N. 2, 3.

5) $\int_0^1 Cos\left[\lambda + Cos\lambda + Arctg\left\{Tg(x\, Cos\, \lambda)\frac{e^{2x\, Sin\lambda} - 1}{e^{2x\, Sin\lambda} + 1}\right\}\right] \sqrt{e^{2x\, Sin\lambda} + e^{-2x\, Sin\lambda} + 2\, Cos(2x\, Cos\lambda)}\, dx =$

$= e^{Sin\lambda}\, Sin(2\, Cos\lambda)$ V. T. 472, N. 2, 3.

6) $\int_0^1 Sin\left[\lambda - Cos\lambda + Arctg\left\{Tg(x\, Cos\, \lambda)\frac{e^{2x\, Sin\lambda} - 1}{e^{2x\, Sin\lambda} + 1}\right\}\right] \sqrt{e^{2x\, Sin\lambda} + e^{-2x\, Sin\lambda} + 2\, Cos(2x\, Cos\lambda)}\, dx =$

$= e^{-Sin\lambda}\, Cos(2\, Cos\lambda) - e^{Sin\lambda}$ V. T. 472, N. 2, 3.

7) $\int_0^1 Cos\left[\lambda - Cos\lambda + Arctg\left\{Tg(x\, Cos\, \lambda)\frac{e^{2x\, Sin\lambda} - 1}{e^{2x\, Sin\lambda} + 1}\right\}\right] \sqrt{e^{2x\, Sin\lambda} + e^{-2x\, Sin\lambda} + 2\, Cos(2x\, Cos\lambda)}\, dx =$

$= e^{-Sin\lambda}\, Sin(2\, Cos\lambda)$ V. T. 472, N. 2, 3.

F. Exponentielle; Circulaire Directe; Circulaire Inverse.	TABLE 472, suite.	Lim. diverses.

8) $\int_0^1 Arctg(e^x).Sin\,px\,dx = \frac{\pi}{4p}\,\frac{(e^{\frac{1}{2}p\pi}+1)^2}{e^{p\pi}+1}$ V. T. 264, N. 14.

9) $\int_0^\infty Arctg\left(\frac{Sin\,qx}{e^{px}-Cos\,qx}\right).dx = \frac{q\pi^2}{6(p^2+q^2)}$ 10) $\int_0^\infty Arctg\left(\frac{Sin\,qx}{e^{px}+Cos\,qx}\right).dx = \frac{q\pi^2}{12(p^2+q^2)}$

11) $\int_0^\infty Arctg\left(\frac{2pe^x\,Cos\,x}{e^{2x}-p^2}\right).dx = \frac{\pi}{4}\,l\frac{1+p}{1-p}$ Sur 9) à 11) v. Bronwin Mathem. 1, 197.

F. Exponentielle; Circulaire Directe; Autre Fonction.	TABLE 473.	Lim. diverses.

1) $\int_0^\infty li(e^{-x}).Sin\,qx\,dx = -\frac{1}{2q}l(1+q^2)$ V. T. 473, N. 7.

2) $\int_0^\infty li(e^{-x}).Cos\,qx\,dx = -\frac{1}{q}Arctg\,q$ V. T. 473, N. 8.

3) $\int_0^\infty li(e^{-x}).e^x\,Sin\,qx\,dx = \frac{-1}{1+q^2}\left(\frac{\pi}{2}+q\,l\,q\right)$ (VIII, 459).

4) $\int_0^\infty li(e^x).e^{-x}\,Sin\,qx\,dx = \frac{1}{1+q^2}\left(\frac{\pi}{2}-q\,l\,q\right)$ (VIII, 459).

5) $\int_0^\infty li(e^{-x}).e^x\,Cos\,qx\,dx = \frac{1}{1+q^2}\left(l\,q-\frac{1}{2}q\pi\right)$ (VIII, 459).

6) $\int_0^\infty li(e^x).e^{-x}\,Cos\,qx\,dx = \frac{-1}{1+q^2}\left(\frac{1}{2}q\pi+l\,q\right)$ (VIII, 459).

7) $\int_0^\infty li(e^{-x}).e^{-px}\,Sin\,qx\,dx = \frac{-1}{p^2+q^2}\left\{\frac{q}{2}\,l\{(1+p)^2+q^2\}-p\,Arctg\left(\frac{q}{1+p}\right)\right\}$ V. T. 283, N. 4.

8) $\int_0^\infty li(e^{-x}).e^{-px}\,Cos\,qx\,dx = \frac{-1}{p^2+q^2}\left\{\frac{p}{2}\,l\{(1+p)^2+q^2\}+q\,Arctg\left(\frac{q}{1+p}\right)\right\}$ V. T. 283, N. 4.

9) $\int_0^{\frac{1}{2}\pi} li(e^{-Tg\,x}).Tg^p x\,\frac{dx}{Sin\,2x} = -\frac{1}{2p}\Gamma(p)$ V. T. 400, N. 3.

F. Logarithmique;
Circulaire Directe;
Circulaire Inverse.

TABLE 474.

Lim. diverses.

1) $\int_0^\infty Arctg\frac{p}{x}.\left\{Cos^2 x . l(1+q^2 Tg^2 x) + \frac{2q^2}{Cos^2 x + q^2 Sin^2 x}\right\}\frac{Sin x\,dx}{Cos^2 x} = \frac{2\pi}{e^p+e^{-p}} l\left\{1+q\frac{e^p-e^{-p}}{e^p+e^{-p}}\right\}$ (VIII, 420).

2) $\int_0^{\frac{\pi}{2}} l\,Tg\,x . Cos x . Arctg(p Cos x) . dx = \frac{p^2\pi}{2(p^2-1)} lp - \frac{\pi}{2} l\{p+\sqrt{1+p^2}\}$
V. T. 317, N. 15 et T. 342, N. 2.

3) $\int_0^{\frac{\pi}{2}} l\,Tg\,x . Sin x . Arctg(p Sin x) . dx = \frac{\pi}{2} l\{p+\sqrt{1+p^2}\} - \frac{p^2\pi}{2(p^2-1)} lp$
V. T. 317, N. 16 et T. 342, N. 1.

4) $\int_0^{\frac{\pi}{2}}\left\{Sin x . l(1+2p Cos x+p^2) + 2 Cos x . Arctg\left(\frac{p Sin x}{1+p Cos x}\right)\right\} dx = 2\frac{1+p}{p} l(1+p) -$
$- \frac{1}{p} l(1+p^2) - 2(1 - Arctg p)$ (VIII, 630).

5) $\int_0^{\frac{\pi}{2}}\left\{Cos x . l(1+2p Cos x+p^2) - 2 Sin x . Arctg\left(\frac{p Sin x}{1+p Cos x}\right)\right\} dx = l(1+p^2) + \frac{2}{p} Arctg p - 2$
(VIII, 630).

6) $\int_0^{\pi}\left\{Sin x\, l . (1+2p Cos x+p^2) + 2 Cos x . Arctg\left(\frac{p Sin x}{1+p Cos x}\right)\right\} dx = \frac{2}{p} l\frac{1+p}{1-p} +$
$+ 2l(1-p^2) - 4\ [p^2<1]$ (VIII, 630).

7) $\int_0^{\pi}\left\{Cos x . l(1+2p Cos x+p^2) - 2 Sin x . Arctg\left(\frac{p Sin x}{1+p Cos x}\right)\right\} dx = 0\ [p^2<1]$ (VIII, 630).

F. Logarithmique;
Circulaire Directe;
Autre Fonction.

TABLE 475.

Lim. diverses.

1) $\int_0^1 li\left(\frac{1}{x}\right) . Sin(q\,lx)\,dx = \frac{1}{1+q^2}\left(q\,lq - \frac{1}{2}\pi\right)$ V. T. 473, N. 4.

2) $\int_0^1 li\left(\frac{1}{x}\right) . Cos(q\,lx)\,dx = \frac{-1}{1+q^2}\left(lq + \frac{1}{2}q\pi\right)$ V. T. 473, N. 6.

3) $\int_0^1 l\Gamma(x) . Sin 2a\pi x\,dx = \frac{1}{2a\pi}(A + l 2a\pi)$ (VIII, 458).

4) $\int_0^1 l\Gamma(x) . Cos 2a\pi x\,dx = \frac{1}{4a}$ (VIII, 271).

5) $\int_0^1 l\Gamma(1-x) . Sin 2a\pi x\,dx = \frac{-1}{2a\pi}(l 2a\pi + A)$ (VIII, 458).

6) $\int_0^1 l\Gamma(1-x) . Cos 2a\pi x\,dx = \frac{1}{4a}$ (VIII, 271).

7) $\int_0^\infty li\left(\frac{1}{x}\right).Sin(q\,lx)\,dx = -\frac{\pi}{1+q^2}$ V. T. 475, N. 1, 9.

8) $\int_0^\infty li\left(\frac{1}{x}\right).Cos(q\,lx)\,dx = -\frac{q\pi}{1+q^2}$ V. T. 475, N. 2, 10.

9) $\int_1^\infty li\left(\frac{1}{x}\right).Sin(q\,lx)\,dx = -\frac{1}{1+q^2}\left\{\frac{\pi}{2}+q\,lq\right\}$ V. T. 473, N. 3.

10) $\int_1^\infty li\left(\frac{1}{x}\right).Cos(q\,lx)\,dx = \frac{1}{1+q^2}\left(lq-\frac{1}{2}q\pi\right)$ V. T. 473, N. 5.

11) $\int_0^{\frac{\pi}{2}} l\left[Sin.Amp\left\{\frac{2x}{\pi}F'(p)\right\}\right].dx = \frac{-\pi}{4}\left\{lp+\frac{\pi}{2}\,\frac{F'\{\sqrt{1-p^2}\}}{F'(p)}\right\}$ (IV, 567).

12) $\int_0^{\frac{\pi}{2}} l\left[Cos.Amp\left\{\frac{2x}{\pi}F'(p)\right\}\right].dx = \frac{\pi}{4}\left\{l\,\frac{\sqrt{1-p^2}}{p}-\frac{\pi}{2}\,\frac{F'\{\sqrt{1-p^2}\}}{F'(p)}\right\}$ (IV, 567).

F. Circulaire Directe;
Circulaire Inverse;
Autre Fonction.

TABLE 476.

Lim. α et β.

1) $\int F\left\{p, Arctg\left(\frac{Tg^q\alpha.Tg^q\beta.Cot^{2q}x}{\sqrt[q]{1-p^2}}\right)\right\}\frac{dx}{\sqrt{(Sin^2x-Sin^2\alpha)(Sin^2\beta-Sin^2x)}} =$

$= \frac{1}{2\,Cos\alpha.Sin\beta}F'(p).F'\{\sqrt{1-Tg^2\alpha.Cot^2\beta}\}$ (VIII, 425).

2) $\int F\left\{p, Arctg\left(\frac{Cot^q\alpha.Cot^q\beta.Tg^{2q}x}{\sqrt[q]{1-p^2}}\right)\right\}\frac{dx}{\sqrt{(Sin^2x-Sin^2\alpha)(Sin^2\beta-Sin^2x)}} =$

$= \frac{1}{2\,Cos\alpha.Sin\beta}F'(p).F'\{\sqrt{1-Tg^2\alpha.Cot^2\beta}\}$ (VIII, 425).

3) $\int F\{\sqrt{1-Cot^2\alpha.Cot^2\beta}, Arctg(Tg\alpha.Tg\beta:Cotx)\}\frac{dx}{\sqrt{(Sin^2x-Sin^2\alpha)(Sin^2\beta-Sin^2x)}} = \frac{1}{2Cos\alpha.Sin\beta}$

$F'\{\sqrt{1-Cot^2\alpha\,Cot^2\beta}\}.F'\{\sqrt{1-Tg^2\alpha.Cot^2\beta}\}$ (VIII, 425).

4) $\int E\{\sqrt{1-Cot^2\alpha.Cot^2\beta}, Arctg(Tg\alpha.Tg\beta.Cot\,x)\}\frac{dx}{\sqrt{(Sin^2x-Sin^2\alpha)(Sin^2\beta-Sin^2x)}} =$

$\frac{1}{2\,Cos\alpha.Sin\beta}E'\{\sqrt{1-Cot^2\alpha.Cot^2\beta}\}.F'\{\sqrt{1-Tg^2\alpha.Cot^2\beta}\}+\frac{Sin\beta}{2\,Cos\alpha}(1-Cot^2\alpha.Cot^2\beta)$

$F'\{\sqrt{1-Sin^2 2\beta.Cosec^2 2\alpha}\}$ (VIII, 427).

PARTIE CINQUIÈME.



PARTIE CINQUIÈME.

F. Alg. rat. entière; Logarithmique; Circulaire Directe; Une autre fonction.	TABLE 477.	Lim. diverses.

1) $\int_0^1 li(x).Sin(q\,lx).x^{p-1}\,dx = \frac{1}{p^2+q^2}\left\{\frac{q}{2}\,l\{(1+p)^2+q^2\} - p\,Arctg\left(\frac{q}{1+p}\right)\right\}$ V. T. 473, N. 7.

2) $\int_0^1 li(x).Cos(q\,lx).x^{p-1}\,dx = \frac{-1}{p^2+q^2}\left\{q\,Arctg\left(\frac{q}{1+p}\right) + \frac{p}{2}\,l\{(1+p)^2+q^2\}\right\}$ V. T. 473, N. 8.

3) $\int_0^1 Sin(p\,Arccos\,x).lx.x^{p-1}\,dx = \frac{\pi}{2^{p+2}}\left\{A + Z'(p) - \frac{1}{p} - 2\,l2\right\}$ V. T. 306, N. 12.

4) $\int_0^\infty e^{-qx}\,Sin\,rx.lx.x^{p-1}\,dx = \frac{\Gamma(p)}{\sqrt{q^2+r^2}^{\,p}}\left\{Arctg\frac{r}{q}.Cos\left(p\,Arctg\frac{r}{q}\right) - \frac{1}{2}\,l(q^2+r^2).\right.$ $\left.Sin\left(p\,Arctg\frac{r}{q}\right) + Sin\left(p\,Arctg\frac{r}{q}\right).Z'(p)\right\}$ (IV, 568).

5) $\int_0^\infty e^{-qx}\,Cos\,rx.lx.x^{p-1}\,dx = \frac{\Gamma(p)}{\sqrt{q^2+r^2}^{\,p}}\left\{Cos\left(p\,Arctg\frac{r}{q}\right).Z'(p) - \frac{1}{2}\,l(q^2+r^2).Cos\left(p\,Arctg\frac{r}{q}\right) - \right.$ $\left. - Arctg\frac{r}{q}.Sin\left(p\,Arctg\frac{r}{q}\right)\right\}$ (IV, 568).

6) $\int_0^\infty e^{-qx}\,Cos\,rx.lx.(qx\,Tg\,rx - rx - p\,Tg\,rx)\,x^{p-1}\,dx = \frac{\Gamma(p)}{(q^2+r^2)^{\frac{1}{2}p}}\,Sin\left(p\,Arctg\frac{r}{q}\right)$ V. T. 361, N. 9.

7) $\int_0^\infty e^{-qx}\,Cos\,rx.lx.(qx - rx\,Tg\,rx - p)\,x^{p-1}\,dx = \frac{\Gamma(p)}{(q^2+r^2)^{\frac{1}{2}p}}\,Cos\left(p\,Arctg\frac{r}{q}\right)$ V. T. 361, N. 10.

8) $\int_0^\infty e^{-px}\,Sin\left(qx - Arctg\frac{q}{p}\right).lx.dx = \frac{1}{\sqrt{p^2+q^2}}\,Arctg\frac{q}{p}$ V. T. 467, N. 1, 2.

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F. Alg. rat. entière; Logarithmique; Circulaire Directe; Une autre fonction.	TABLE 477, suite.	Lim. diverses.

9) $\int_0^\infty e^{-px} Cos\left(qx - Arctg\frac{p}{q}\right). lx . dx = \frac{-1}{\sqrt{p^2+q^2}}\left\{A + \frac{1}{2} l(p^2+q^2)\right\}$ V. T. 467, N. 1, 2.

10) $\int_0^\infty e^{-rx} Sin\left(qx - p\, Arctg\frac{q}{r}\right). lx . x^{p-1} dx = \frac{\Gamma(p)}{(q^2+r^2)^{\frac{1}{2}p}} Arctg\frac{q}{r}$ V. T. 477, N. 4, 5.

11) $\int_0^\infty e^{-rx} Cos\left(qx - p\, Arctg\frac{q}{r}\right). lx . x^{p-1} dx = \frac{\Gamma(p)}{(q^2+r^2)^{\frac{1}{2}p}}\left\{Z'(p) - \frac{1}{2} l(q^2+r^2)\right\}$ V. T. 477, N. 4, 5.

12) $\int_0^{\frac{1}{q}} lx . Sin(Arccos\, qx) . x^{p-1} dx = \frac{\pi}{2^{p+1}q^p}\left\{A + Z'(q) - \frac{1}{q} - 2\, l(2q)\right\}$ (IV, 569).

F. Alg. rat. entière; Exponentielle; Deux autres fonctions.	TABLE 478.	Lim. 0 et ∞.

1) $\int e^{-qrx}(1 - 2e^{-qx} Cos\, sx + e^{-2qx})^{\frac{1}{2}a} Sin\left\{srx + a\, Arctg\left(\frac{e^{-qx} Sin\, sx}{e^{-qx} Cos\, sx - 1}\right)\right\} . x^{p-1} dx =$
$= \frac{\Gamma(p)}{(s^2+r^2)^{\frac{1}{2}a}} Sin\left(p\, Arctg\frac{s}{q}\right) . \Delta^a . r^{-p}$ (IV, 569).

2) $\int e^{-qrx}(1 - 2e^{-qx} Cos\, sx + e^{-2qx})^{\frac{1}{2}a} Cos\left\{srx + a\, Arctg\left(\frac{e^{-qx} Sin\, sx}{e^{-qx} Cos\, sx - 1}\right)\right\} . x^{p-1} dx =$
$= \frac{\Gamma(p)}{(s^2+r^2)^{\frac{1}{2}a}} Cos\left(p\, Arctg\frac{s}{q}\right) . \Delta^a . r^{-p}$ (IV, 569).

3) $\int e^{-qx}\{lx + Z'(p)\} x^{p-1} dx = -\Gamma(p)\frac{lq}{q^p}$ (IV, 569).

4) $\int e^{-qx}(e^{-x}-1)^a \{lx + Z'(p)\} x^{p-1} dx = -\Gamma(p) . \Delta^a . \frac{lq}{q^p}$ (IV, 569).

F. Alg. rat. fract. à dén. monôme; Logarithmique; Circulaire Directe; Une autre fonction.	TABLE 479.	Lim. diverses.

1) $\int_0^1 li(x) . Sin(q\, lx)\frac{dx}{x} = \frac{1}{2q} l(1+q^2)$ V. T. 473, N. 1.

2) $\int_0^1 li(x) . Cos(q\, lx)\frac{dx}{x} = -\frac{1}{q} Arctg\, q$ V. T. 473, N. 2.

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F. Alg. rat. fract. à dén. monôme;
Logarithmique;
Circulaire Directe;
Une autre fonction.

TABLE 479, suite.

Lim. diverses.

3) $\int_0^1 li(x) \,.\, Sin(q\,lx) \frac{dx}{x^2} = \frac{1}{1+q^2}\left(q\,lq + \frac{1}{2}\pi\right)$ V. T. 473, N. 3.

4) $\int_0^1 li(x) \,.\, Cos(q\,lx) \frac{dx}{x^2} = \frac{1}{1+q^2}\left(lq - \frac{1}{2}q\pi\right)$ V. T. 473, N. 5.

5) $\int_0^\infty Arctg\,x \,.\, Sin(p\,lx) \frac{dx}{x} = -\frac{\pi}{4p}\frac{(e^{\frac{1}{2}p\pi}-1)^2}{e^{p\pi}+1}$ V. T. 402, N. 6.

6) $\int_0^\infty lx \,.\, e^{-px} Sin\,qx \frac{dx}{x} = -\left\{A + \frac{1}{2}l(p^2+q^2)\right\} . Arctg\frac{q}{p}$ Schlömilch, Schl. Z. 7, 262.

7) $\int_0^\infty l\frac{e^x + 2p\,Sin\,x + p^2 e^{-x}}{e^x - 2p\,Sin\,x + p^2 e^{-x}} \frac{dx}{x} = \pi\,Arctg\,p$ Bronwin, Mathem. I, 197.

8) $\int_0^\infty li(x) \,.\, Sin(q\,lx) \frac{dx}{x^2} = \frac{\pi}{1+q^2}$ V. T. 479, N. 3, 13.

9) $\int_0^\infty li(x) \,.\, Cos(q\,lx) \frac{dx}{x^2} = -\frac{q\pi}{1+q^2}$ V. T. 479, N. 4, 14.

10) $\int_0^\infty e^{-px}(e^{-x}-1)^a \frac{lx + Z'(q)}{x^{q+1}} dx = \frac{\pi}{\Gamma(q+1)\,Sin\,q\pi} \Delta^a.(p^q\,lp)\,[q<a]$ V. T. 478, N. 4.

11) $\int_0^\infty e^{-px}(e^{-x}-1)^a \frac{lx - Z'(q+1) - \pi\,Cot\{(q+1)\pi\}}{x^{q+1}} . dx = -\frac{\pi}{\Gamma(q+1)} Cosec\{(q+1)\pi\} .$
$\Delta^a.(p^q\,lp)\,[q<a], = -\frac{\pi}{\Gamma(q+1)} Cosec\{(q+1)\pi\}.\Delta^a.(p^a\,lp)\,[q>a]$ (IV, 571).

12) $\int_0^\infty (lx)^2 . e^{-px}(p\,Sin\,qx - q\,Cos\,qx)\,dx = -\{2A + l(p^2+q^2)\}\,Arctg\frac{q}{p}$ V. T. 479, N. 6.

13) $\int_1^\infty li(x) \,.\, Sin(q\,lx) \frac{dx}{x^2} = \frac{1}{1+q^2}\left\{\frac{\pi}{2} - q\,lq\right\}$ V. T. 473, N. 4.

14) $\int_1^\infty li(x) \,.\, Cos(q\,lx) \frac{dx}{x^2} = \frac{-1}{1+q^2}\left\{lq + \frac{1}{2}q\pi\right\}$ V. T. 473, N. 6.

F. Alg. rat. fract. à dén. bin. q^2+x^2;
Exponentielle;
Circulaire Directe à un facteur;
Une autre fonction.

TABLE 480.

Lim. 0 et ∞.

1) $\int e^{s\,Cos\,rx}\,Si(x) \,.\, Sin(s\,Sin\,rx) \frac{dx}{q^2+x^2} = \frac{\pi}{4q}\{Ei(q) - Ei(-q)\}(e^{s\,e^{-qr}} - 1)$ (VIII, 649).

2) $\int e^{s\,Cos\,rx}\,Si(x) \,.\, Cos(s\,Sin\,rx) \frac{x\,dx}{q^2+x^2} = \frac{\pi}{4}\{Ei(-q) - Ei(q)\}\,e^{s\,e^{-qr}}$ (VIII, 649).

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3) $\int e^{s\,Cos\,r x}\,Ci(x)\,.\,Sin\,(s\,Sin\,r x)\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4}\,Ei(-q).(e^{s\,e^{-qr}}-e^{s\,e^{qr}})$ (VIII, 649).

4) $\int e^{s\,Cos\,r x}\,Ci(x)\,.\,Cos\,(s\,Sin\,r x)\,\frac{dx}{q^2+x^2}=\frac{\pi}{4q}\,Ei(-q).(e^{s\,e^{qr}}+e^{s\,e^{-qr}})$ (VIII, 649).

5) $\int e^{s\,Cos\,r x+s_1\,Cos\,r_1 x+\dots}\,Si(x).Sin\,\{(sr+s_1 r_1+\dots)x\}\,\frac{dx}{q^2+x^2}=\frac{\pi}{4q}\,\{Ei(q)-Ei(-q)\}$
$\{e^{s\,e^{-qr}+s_1\,e^{-qr_1}+\dots}-1\}$ (VIII, 650).

6) $\int e^{s\,Cos\,r x+s_1\,Cos\,r_1 x+\dots}\,Si(x)\,.\,Cos\,\{(sr+s_1 r_1+\dots)x\}\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4}\,\{Ei(-q)-Ei(q)\}$
$e^{s\,e^{-qr}+s_1\,e^{-qr_1}+\dots}$ (VIII, 650).

7) $\int e^{s\,Cos\,r x+s_1\,Cos\,r_1 x+\dots}\,Ci\,(x)\,.\,Sin\,\{(sr+s_1 r_1+\dots)x\}\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4}\,Ei(-q)\,.$
$\{e^{s\,e^{-qr}+s_1\,e^{-qr_1}+\dots}-e^{s\,e^{qr}+s_1\,e^{qr_1}+\dots}\}$ (VIII, 650).

8) $\int e^{s\,Cos\,r x+s_1\,Cos\,r_1 x+\dots}\,Ci\,(x).\,Cos\,\{(sr+s_1 r_1+\dots)x\}\,\frac{dx}{q^2+x^2}=\frac{\pi}{4q}\,Ei\,(-q)$
$\{e^{s\,e^{qr}+s_1\,e^{qr_1}+\dots}+e^{s\,e^{-qr}+s_1\,e^{-qr_1}+\dots}\}$ (VIII, 650).

9) $\int e^{s\,Cos\,r x}\,Si\,(x).\,Sin\,(s\,Sin\,r x+r x)\,\frac{dx}{q^2+x^2}=\frac{\pi}{4q}\,\{Ei(q)-Ei(-q)\}\,e^{s\,e^{-qr}-qr}$ (VIII, 650).

10) $\int e^{s\,Cos\,r x}\,Si\,(x)\,.\,Cos\,(s\,Sin\,r x+r x)\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4}\,\{Ei\,(-q)-Ei\,(q)\}\,e^{s\,e^{-qr}-qr}$ (VIII, 650).

11) $\int e^{s\,Cos\,r x}\,Ci(x)\,.\,Sin\,(s\,Sin\,r x+r x)\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4}\,Ei(-q).\{e^{s\,e^{-qr}-qr}-e^{s\,e^{qr}+qr}\}$ (VIII, 650).

12) $\int e^{s\,Cos\,r x}\,Ci(x)\,.Cos(s\,Sin\,r x+r x)\,\frac{dx}{q^2+x^2}=\frac{\pi}{4q}\,Ei(-q)\,.\{e^{s\,e^{qr}+qr}+e^{s\,e^{-qr}-qr}\}$ (VIII, 650).

13) $\int e^{s\,Cos\,r x+s_1\,Cos\,r_1 x+\dots}\,Si\,(x)\,.\,Sin\,(s\,Sin\,r x+s_1\,Sin\,r_1 x+\dots+p x)\,\frac{dx}{q^2+x^2}=$
$=\frac{\pi}{4q}\,\{Ei(q)-Ei\,(-q)\}\,(e^{s\,e^{-qr}+s_1\,e^{-qr_1}+\dots-pq}-e^{s+s_1+\dots})$ (II, 60).

14) $\int e^{s\,Cos\,r x+s_1\,Cos\,r_1 x+\dots}\,Si(x)\,.\,Cos\,(s\,Sin\,r x+s_1\,Sin\,r_1 x+\dots+p x)\,\frac{x\,dx}{q^2+x^2}=$
$=\frac{\pi}{4}\,\{Ei(-q)-Ei(q)\}\,e^{s\,e^{-qr}+s_1\,e^{-qr_1}+\dots-pq}$ (II, 60).

F. Alg. rat. fract. à dén. bin. q^2+x^2;
Exponentielle;
Circulaire Directe à un facteur;
Une autre fonction.

TABLE 480, suite.

Lim. 0 et ∞.

15) $\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\ldots}\,Ci(x)\,.\,Sin\,(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\ldots+p\,x)\frac{x\,dx}{q^2+x^2}=$

$=\frac{\pi}{4}\,Ei(-q).(e^{s\,e^{-qr}+s_1\,e^{-qr_1}+\ldots-qp}-e^{s\,e^{qr}+s_1\,e^{qr_1}+\ldots+qp})$ (H, 69).

16) $\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\ldots}\,Ci(x)\,.\,Cos(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\ldots p\,x)\frac{dx}{q^2+x^2}=$

$=\frac{\pi}{4q}\,Ei(-q).(e^{s\,e^{qr}+s_1\,e^{qr_1}+\ldots+qp}+e^{s\,e^{-qr}+s_1\,e^{-qr_1}+\ldots-qp})$ (H, 69).

F. Alg. rat. fract. à dén. bin. q^2+x^2;
Exponentielle;
Circ. Directe à deux facteurs;
Une autre fonction.

TABLE 481.

Lim. 0 et ∞.

1) $\int e^{t\,Cos\,p\,x}\,Si(x).\,Cos^s\,r\,x.\,Sin\,(s\,r\,x+t\,Sin\,p\,x)\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+2}q}\,\{Ei(q)-Ei(-q)\}$

$\{(1+e^{-2qr})^s\,e^{t\,e^{-qp}}-1\}$ (VIII, 651).

2) $\int e^{t\,Cos\,p\,x}\,Si(x).\,Cos^s\,r\,x.\,Cos\,(s\,r\,x+t\,Sin\,p\,x)\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+1}}\,\{Ei(-q)-Ei(q)\}$

$(1+e^{-2qr})^s\,e^{t\,e^{-qp}}$ (VIII, 651).

3) $\int e^{t\,Cos\,p\,x}\,Ci(x).\,Cos^s\,r\,x\,.Sin\,(s\,r\,x+t\,Sin\,p\,x)\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+2}}\,Ei(-q).\{e^{t\,e^{-qp}-s\,q\,r}-e^{t\,e^{qp}+s\,q\,r}\}$

$(e^{qr}+e^{-qr})^s$ (VIII, 651).

4) $\int e^{t\,Cos\,p\,x}\,Ci(x).Cos^s\,r\,x.Cos(s\,r\,x+t\,Sin\,p\,x)\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+1}q}\,Ei(-q).(e^{t\,e^{qp}+s\,q\,r}+e^{t\,e^{-qp}-s\,q\,r})$

$(e^{qr}+e^{-qr})^s$ (VIII, 651).

5) $\int e^{t\,Cos\,p\,x}\,Si(x).\,Cos^s\,r\,x.\,Sin\,\{(s\,r+p)\,x+t\,Sin\,p\,x\}\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+2}q}\,\{Ei(q)-Ei(-q)\}$

$(1+e^{-2qr})^s\,e^{t\,e^{-qp}-qp}$ (VIII, 652).

6) $\int e^{t\,Cos\,p\,x}\,Si(x).\,Cos^s\,r\,x.\,Cos\,\{(s\,r+p)\,x+t\,Sin\,p\,x\}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+1}}\,\{Ei(-q)-Ei(q)\}$

$(1+e^{-2qr})^s\,e^{t\,e^{qp}-qp}$ (VIII, 652).

7) $\int e^{t\,Cos\,p\,x}\,Ci(x).\,Cos^s\,r\,x\,.\,Sin\left\{(sr+p)x+t\,Sin\,p\,x\right\}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+2}}\,Ei(-q).$
$\left(e^{t\,e^{-qp}-sqr-qp}-e^{t\,e^{qp}+sqr+qp}\right)\left(e^{qr}+e^{-qr}\right)^s$ (VIII, 652).

8) $\int e^{t\,Cos\,p\,x}\,Ci(x).\,Cos^s\,r\,x\,.\,Cos\left\{(sr+p)x+t\,Sin\,p\,x\right\}\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+2}q}\,Ei(-q).$
$\left(e^{t\,e^{qp}+sqr+qp}+e^{t\,e^{-qp}-sqr-qp}\right)\left(e^{qr}+e^{-qr}\right)^s$ (VIII, 652).

9) $\int e^{t\,Cos\,p\,x}\,Si(x)\,.\,Sin^s\,r\,x\,.\,Sin\left(\frac{1}{2}s\pi-s\,r\,x-t\,Sin\,p\,x\right)\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+2}q}\left\{Ei(-q)-Ei(q)\right\}$
$\left\{\left(1-e^{-2qr}\right)^s e^{t\,e^{-qp}}-1\right\}$ (VIII, 654).

10) $\int e^{t\,Cos\,p\,x}\,Si(x)\,.\,Sin^s\,r\,x\,.\,Cos\left(\frac{1}{2}s\pi-s\,r\,x-t\,Sin\,p\,x\right)\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+2}}\left\{Ei(-q)-Ei(q)\right\}$
$\left(1-e^{-2qr}\right)^s e^{t\,e^{-qp}}$ (VIII, 654).

11) $\int e^{t\,Cos\,p\,x}\,Ci(x).\,Sin^s\,r\,x\,.\,Sin\left(\frac{1}{2}s\pi-s\,r\,x-t\,Sin\,p\,x\right)\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+2}}\,Ei(-q).$
$\left\{(-1)^s e^{t\,e^{qp}+sqr}-e^{t\,e^{-qp}-sqr}\right\}\left(e^{qr}-e^{-qr}\right)^s$ (VIII, 654).

12) $\int e^{t\,Cos\,p\,x}\,Ci(x).\,Sin^s\,r\,x\,.\,Cos\left(\frac{1}{2}s\pi-s\,r\,x-t\,Sin\,p\,x\right)\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+2}q}\,Ei(-q).$
$\left\{(-1)^s e^{t\,e^{qp}+sqr}+e^{t\,e^{-qp}-sqr}\right\}\left(e^{qr}-e^{-qr}\right)^s$ (VIII, 654).

13) $\int e^{t\,Cos\,p\,x}\,Si(x).\,Sin^s\,r\,x\,.\,Sin\left(\frac{1}{2}s\pi-(sr+p)x-t\,Sin\,p\,x\right)\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+2}q}\left\{Ei(-q)-Ei(q)\right\}$
$\left(1-e^{-2qr}\right)^s e^{t\,e^{-qp}-qp}$ (VIII, 655).

14) $\int e^{t\,Cos\,p\,x}\,Si(x).\,Sin^s\,r\,x\,.\,Cos\left(\frac{1}{2}s\pi-(sr+p)x-t\,Sin\,p\,x\right)\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+2}}\left\{Ei(-q)-Ei(q)\right\}$
$\left(1-e^{-2qr}\right)^s e^{t\,e^{-qp}-qp}$ (VIII, 655).

15) $\int e^{t\,Cos\,p\,x}\,Ci(x).\,Sin^s\,r\,x\,.\,Sin\left(\frac{1}{2}s\pi-(sr+p)x-t\,Sin\,p\,x\right)\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+2}}\,Ei(-q).$
$\left\{(-1)^s e^{t\,e^{qp}+(sr+p)q}-e^{t\,e^{-qp}-(sr+p)q}\right\}\left(e^{qr}-e^{-qr}\right)^s$ (VIII, 655).

16) $\int e^{t\,Cos\,p\,x}\,Ci(x).\,Sin^s\,r\,x\,.\,Cos\left(\frac{1}{2}s\pi-(sr+p)x-t\,Sin\,p\,x\right)\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+2}q}\,Ei(-q).$
$\left\{(-1)^s e^{t\,e^{qp}+(sr+p)q}+e^{t\,e^{-qp}-(sr+p)q}\right\}\left(e^{qr}-e^{-qr}\right)^s$ (VIII, 655).

F. Alg. rat. fract. à dén. bin. q^2+x^2;
Exponentielle;
Circ. Directe à plus. facteurs;
Une autre fonction.

TABLE 482.

Lim. 0 et ∞.

1) $$\int e^{t\,Cos\,px+t_1\,Cos\,p_1x+\dots} Si(x)\,.\,Cos^s rx\,.\,Cos^{s_1} r_1x\dots Sin\left\{(sr+s_1r_1+\dots)x+t\,Sin\,px+ + t_1\,Sin\,p_1x+\dots\right\}\frac{dx}{q^2+x^2} = \frac{\pi}{2^{1+s+s_1+\dots}q}\left\{Ei(q)-Ei(-q)\right\}\left\{(1+e^{-2qr})^s (1+e^{-2qr_1})^{s_1}\dots e^{te^{-qp}+t_1e^{-qp_1}+\dots}-1\right\}$$ (VIII, 653).

2) $$\int e^{t\,Cos\,px+t_1\,Cos\,p_1x+\dots} Si(x)\,.\,Cos^s rx\,.\,Cos^{s_1} r_1x\dots Cos\left\{(sr+s_1r_1+\dots)x+t\,Sin\,px+ + t_1\,Sin\,p_1x+\dots\right\}\frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{1+s+s_1+\dots}}\left\{Ei(-q)-Ei(q)\right\}(1+e^{-2qr})^s (1+e^{-2qr_1})^{s_1}\dots e^{te^{-qp}+t_1e^{-qp_1}+\dots}$$ (VIII, 652).

3) $$\int e^{t\,Cos\,px+t_1\,Cos\,p_1x+\dots} Ci(x)\,.\,Cos^s rx\,.\,Cos^{s_1} r_1x\dots Sin\left\{(sr+s_1r_1+\dots)x+t\,Sin\,px+ + t_1\,Sin\,p_1x+\dots\right\}\frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{2+s+s_1+\dots}}Ei(-q)\,.\,(e^{qr}+e^{-qr})^s(e^{qr_1}+e^{-qr_1})^{s_1}\dots \left\{e^{te^{-qp}+t_1e^{-qp_1}+\dots-(sr+s_1r_1+\dots)q}-e^{te^{qp}+t_1e^{qp_1}+\dots+(sr+s_1r_1+\dots)q}\right\}$$ (VIII, 653).

4) $$\int e^{t\,Cos\,px+t_1\,Cos\,p_1x+\dots} Ci(x)\,.\,Cos^s rx\,.\,Cos^{s_1} r_1x\dots Cos\left\{(sr+s_1r_1+\dots)x+t\,Sin\,px+ + t_1\,Sin\,p_1x+\dots\right\}\frac{dx}{q^2+x^2} = \frac{\pi}{2^{2+s+s_1+\dots}q}Ei(-q)\,.\,(e^{qr}+e^{-qr})^s(e^{qr_1}+e^{-qr_1})^{s_1}\dots \left\{e^{te^{qp}+t_1e^{qp_1}+\dots+(sr+s_1r_1+\dots)q}+e^{te^{-qp}+t_1e^{-qp_1}+\dots-(sr+s_1r_1+\dots)q}\right\}$$ (VIII, 653).

5) $$\int e^{t\,Cos\,px+t_1\,Cos\,p_1x+\dots} Si(x)\,.\,Sin^s rx\,.\,Sin^{s_1} r_1x\dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots)x- - t\,Sin\,px-t_1\,Sin\,p_1x-\dots\right\}\frac{dx}{q^2+x^2} = \frac{\pi}{2^{2+s+s_1+\dots}q}\left\{Ei(-q)-Ei(q)\right\}\left\{(1-e^{-2qr})^s (1-e^{-2qr_1})^{s_1}\dots e^{te^{-qp}+t_1e^{-qp_1}+\dots}-1\right\}$$ (VIII, 656).

6) $$\int e^{t\,Cos\,px+t_1\,Cos\,p_1x+\dots} Si(x)\,.\,Sin^s rx\,.\,Sin^{s_1} r_1x\dots Cos\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots)x- - t\,Sin\,px-t_1\,Sin\,p_1x-\dots\right\}\frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{2+s+s_1+\dots}}\left\{Ei(-q)-Ei(q)\right\}(1-e^{-2qr})^s (1-e^{-2qr_1})^{s_1}\dots e^{te^{-qp}+t_1e^{-q_1p}+\dots}$$ (VIII, 656).

7) $\int e^{t\, Cos\, px + t_1 Cos\, p_1 x + \dots} Ci(x) . Sin^s rx . Sin^{s_1} r_1 x \dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi - (sr+s_1 r_1+\dots)x - t\, Sin\, px - t_1 Sin\, p_1 x - \dots\right\} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{2+s+s_1+\dots}} Ei(-q) . (e^{qr}-e^{-qr})^s (e^{qr_1}-e^{-qr_1})^{s_1} \dots \left\{(-1)^{s+s_1+\dots} e^{t e^{qp} + t_1 e^{qp_1} + \dots + (sr+s_1 r_1+\dots)q} - e^{t e^{-qp} + t_1 e^{-qp_1} + \dots - (sr+s_1 r_1+\dots)q}\right\}$ (VIII, 656).

8) $\int e^{t\, Cos\, px + t_1 Cos\, p_1 x + \dots} Ci(x) . Sin^s rx . Sin^{s_1} r_1 x \dots Cos\left\{(s+s_1+\dots)\frac{1}{2}\pi - (sr+s_1 r_1+\dots)x - t\, Sin\, px - t_1 Sin\, p_1 x - \dots\right\} \frac{dx}{q^2+x^2} = \frac{\pi}{2^{2+s+s_1+\dots} q} Ei(-q) . (e^{qr}-e^{-qr})^s (e^{qr_1}-e^{-qr_1})^{s_1} \dots \left\{(-1)^{s+s_1+\dots} e^{t e^{qp} + t_1 e^{qp_1} + \dots + (sr+s_1 r_1+\dots)q} + e^{t e^{-qp} + t_1 e^{-qp_1} + \dots - (sr+s_1 r_1+\dots) q}\right\}$ (VIII, 656).

9) $\int e^{t\, Cos\, px + \dots} Si(x) . Cos^s rx \dots Sin^n ux \dots Sin\left\{(n+\dots)\frac{1}{2}\pi - (sr+\dots+nu+\dots)x - t\, Sin\, px - \dots\right\} \frac{dx}{q^2+x^2} = \frac{\pi}{2^{2+s+\dots+n+\dots} q} \{Ei(-q) - Ei(q)\} \{(1+e^{-2qr})^s \dots (1-e^{-2qu})^n \dots e^{t e^{-qp} + \dots} - 1\}$ (VIII, 657).

10) $\int e^{t\, Cos\, px + \dots} Si(x) . Cos^s rx \dots Sin^n ux \dots Cos\left\{(n+\dots)\frac{1}{2}\pi - (sr+\dots+nu+\dots)x - t\, Sin\, px - \dots\right\} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{2+s+\dots+n+\dots}} \{Ei(-q) - Ei(q)\} (1+e^{-2qr})^s \dots (1-e^{-2qu})^n \dots e^{t e^{-qp} + \dots}$ (VIII, 657).

11) $\int e^{t\, Cos\, px + \dots} Ci(x) . Cos^s rx \dots Sin^n ux \dots Sin\left\{(n+\dots)\frac{1}{2}\pi - (sr+\dots+nu+\dots)x - t\, Sin\, px - \dots\right\} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{2+s+\dots+n+\dots}} Ei(-q) . (e^{qr}+e^{-qr})^s \dots (e^{qu}-e^{-qu})^n \dots \left\{(-1)^{n+\dots} e^{t e^{qp} + \dots + (sr+\dots+nu+\dots)q} - e^{t e^{-qp} + \dots - (sr+\dots+nu+\dots)q}\right\}$ (VIII, 657).

12) $\int e^{t\, Cos\, px + \dots} Ci(x) . Cos^s rx \dots Sin^n ux \dots Cos\left\{(n+\dots)\frac{1}{2}\pi - (sr+\dots+nu+\dots)x - t\, Sin\, px - \dots\right\} \frac{dx}{q^2+x^2} = \frac{\pi}{2^{2+s+\dots+n+\dots} q} Ei(-q) . (e^{qr}+e^{-qr})^s \dots (e^{qu}-e^{-qu})^n \dots \left\{(-1)^{n+\dots} e^{t e^{qp} + \dots + (sr+\dots+nu+\dots)q} + e^{t e^{-qp} + \dots - (sr+\dots+nu+\dots)q}\right\}$ (VIII, 657).

F. Alg. rat. fract. à dén. bin. q^2+x^2;
Exponentielle;
Circ. Directe à plus. facteurs;
Une autre fonction.

TABLE 482, suite.

Lim. 0 et ∞.

13) $$\int e^{t\,Cos\,px+\dots}\,Si(x).\,Cos^s\,rx\dots Sin^n\,ux\dots Sin\left\{(n+\dots)\frac{1}{2}\pi-wx-t\,Sin\,px-\dots\right\}\frac{dx}{q^2+x^2}=$$
$$=\frac{\pi}{2^{2+s+\dots+n+\dots}q}\left\{Ei(-q)-Ei(q)\right\}(e^{qr}+e^{-qr})^s\dots(e^{qu}-e^{-qu})^n\dots e^{te^{-qp}+\dots-qw}$$
(VIII, 659).

14) $$\int e^{t\,Cos\,px+\dots}\,Si(x).\,Cos^s\,rx\dots Sin^n\,ux\dots Cos\left\{(n+\dots)\frac{1}{2}\pi-wx-t\,Sin\,px-\dots\right\}\frac{x\,dx}{q^2+x^2}=$$
$$=\frac{\pi}{2^{2+s+\dots+n+\dots}}\left\{Ei(-q)-Ei(q)\right\}(e^{qr}+e^{-qr})^s\dots(e^{qu}-e^{-qu})^n\dots e^{te^{-qp}+\dots-qw}$$
(VIII, 658).

15) $$\int e^{t\,Cos\,px+\dots}\,Ci(x).\,Cos^s\,rx\dots Sin^n\,ux\dots Sin\left\{(n+\dots)\frac{1}{2}\pi-wx-t\,Sin\,px-\dots\right\}\frac{x\,dx}{q^2+x^2}=$$
$$=\frac{\pi}{2^{2+s+\dots+n+\dots}}Ei(-q).\left\{(-1)^{n+\dots}e^{te^{qp}+\dots+qw}-e^{te^{-qp}+\dots-qw}\right\}(e^{qr}+e^{-qr})^s\dots(e^{qu}-e^{-qu})^n$$
(VIII, 659).

16) $$\int e^{t\,Cos\,px+\dots}\,Ci(x).\,Cos^s\,rx\dots Sin^n\,ux\dots Cos\left\{(n+\dots)\frac{1}{2}\pi-wx-t\,Sin\,px-\dots\right\}\frac{dx}{q^2+x^2}=$$
$$=\frac{\pi}{2^{2+s+\dots+n+\dots}q}Ei(-q).\left\{(-1)^{n+\dots}e^{te^{qp}+\dots+qw}+e^{te^{-qp}+\dots-qw}\right\}(e^{qr}+e^{-qr})^s\dots(e^{qu}-e^{qu})^n\dots$$
(VIII, 659).

Dans 13) à 16) on a $w>sr+\dots+nu+\dots$

F. Alg. rat. fract. à dén. bin. q^2-x^2;
Exponentielle;
Circ. Dir. à un ou deux fact.;
Une autre fonction.

TABLE 483.

Lim. 0 et ∞.

1) $\int e^{s\,Cos\,rx}\,Si(x).\,Sin(s\,Sin\,rx)\frac{dx}{q^2-x^2}=\frac{\pi}{2q}Si(q).\left\{1-e^{s\,Cos\,qr}\,Cos(s\,Sin\,qr)\right\}$ (VIII, 650).

2) $\int e^{s\,Cos\,rx}\,Si(x).\,Cos(s\,Sin\,rx)\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\left\{-Ci(q)+Si(q).e^{s\,Cos\,qr}\,Sin(s\,Sin\,qr)\right\}$ (VIII, 649).

3) $\int e^{s\,Cos\,rx}\,Si(x).\,Sin(s\,Sin\,rx+rx)\frac{dx}{q^2-x^2}=\frac{-\pi}{2q}Si(q).e^{s\,Cos\,qr}\,Cos(s\,Sin\,qr+qr)$ (VIII, 650).

4) $\int e^{s\,Cos\,rx}\,Si(x).\,Cos(s\,Sin\,rx+rx)\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}Si(q).e^{s\,Cos\,qr}\,Sin(s\,Sin\,qr+qr)$ (VIII, 650).

5) $\int e^{s\,Cos\,r x+s_1\,Cos\,r_1 x+\dots} Si(x)\,.\,Sin(s\,Sin\,r x+s_1\,Sin\,r_1 x+\dots)\frac{dx}{q^2-x^2}=\frac{\pi}{2q}Si(q)\,.$

$\{1-e^{s\,Cos\,q r+s_1\,Cos\,q r_1+\dots}Cos(s\,Sin\,q r+s_1\,Sin\,q r_1+\dots)\}$ (VIII, 651).

6) $\int e^{s\,Cos\,r x+s_1\,Cos\,r_1 x+\dots} Si(x)\,.\,Cos(s\,Sin\,r x+s_1\,Sin\,r_1 x+\dots)\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\{-Ci(q)+Si(q)\,.$

$e^{s\,Cos\,q r+s_1\,Cos\,q r_1+\dots}Sin(s\,Sin\,q r+s_1\,Sin\,q r_1+\dots)\}$ (VIII, 651).

7) $\int e^{s\,Cos\,r x+s_1\,Cos\,r_1 x+\dots} Si(x)\,.\,Sin(s\,Sin\,r x+s_1\,Sin\,r_1 x+\dots+p x)\frac{dx}{q^2-x^2}=$

$=-\frac{\pi}{2q}e^{s\,Cos\,q r+s_1\,Cos\,q r_1+\dots}Si(q)\,.\,Cos(s\,Sin\,q r+s_1\,Sin\,q r_1+\dots+q p)$ (H, 116).

8) $\int e^{s\,Cos\,r x+s_1\,Cos\,r_1 x+\dots} Si(x)\,.\,Cos(s\,Sin\,r x+s_1\,Sin\,r_1 x+\dots+p x)\frac{x\,dx}{q^2-x^2}=$

$=\frac{\pi}{2}e^{s\,Cos\,q r+s_1\,Cos\,q r_1+\dots}Si(q)\,.\,Sin(s\,Sin\,q r+s_1\,Sin\,q r_1+\dots+q p)$ (H, 116).

9) $\int e^{t\,Cos\,p x}Si(x)\,.\,Cos^s r x\,.\,Sin(s r x+t\,Sin\,p x)\frac{dx}{q^2-x^2}=\frac{\pi}{2q}Si(q)\,.\{2^{-s}-e^{t\,Cos\,q p}Cos^s q r\,.$

$Cos(t\,Sin\,q p+s q r)\}$ (VIII, 651).

10) $\int e^{t\,Cos\,p x}Si(x)\,.\,Cos^s r x\,.\,Cos(s r x+t\,Sin\,p x)\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\{-2^{-s}Ci(q)+Si(q)\,.\,e^{t\,Cos\,q p}$

$Cos^s q r\,.\,Sin(t\,Sin\,q p+s q r)\}$ (VIII, 651).

11) $\int e^{t\,Cos\,p x}Si(x)\,.\,Cos^s r x\,.\,Sin\{(s r+p)x+t\,Sin\,p x\}\frac{dx}{q^2-x^2}=-\frac{\pi}{2q}Si(q)\,.\,e^{t\,Cos\,q p}Cos^s q r\,.$

$Cos\{t\,Sin\,q p+(s r+p)q\}$ (VIII, 652).

12) $\int e^{t\,Cos\,p x}Si(x)\,.\,Cos^s r x\,.\,Cos\{(s r+p)x+t\,Sin\,p x\}\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}Si(q)\,.\,e^{t\,Cos\,q p}Cos^s q r\,.$

$Sin\{t\,Sin\,q p+(s r+p)q\}$ (VIII, 652).

13) $\int e^{t\,Cos\,p x}Si(x)\,.\,Sin^s r x\,.\,Sin\left\{\frac{1}{2}s\pi-s r x-t\,Sin\,p x\right\}\frac{dx}{q^2-x^2}=\frac{\pi}{2q}Si(q)\,.$

$\left\{-2^{-s}+e^{t\,Cos\,q p}Sin^s q r\,.\,Cos\left(\frac{1}{2}s\pi-s q r-t\,Sin\,q p\right)\right\}$ (VIII, 653).

14) $\int e^{t\,Cos\,p x}Si(x)\,.\,Sin^s r x\,.\,Cos\left\{\frac{1}{2}s\pi-s r x-t\,Sin\,p x\right\}\frac{x\,dx}{q^2-x^2}=\frac{-\pi}{2}\left\{2^{-s}Ci(q)+\right.$

$\left.+Si(q)\,.\,e^{t\,Cos\,q p}Sin^s q r\,.\,Sin\left(\frac{1}{2}s\pi-s q r-t\,Sin\,q p\right)\right\}$ (VIII, 651).

F. Alg. rat. fract. à dén. bin. q^2-x^2;
Exponentielle;
Circ. Dir. à un ou deux fact.;
Une autre fonction.

TABLE 483, suite.

Lim. 0 et ∞.

15) $\int e^{t\,Cos\,px}\,Si(x)\,.\,Sin^{s}\,rx\,.\,Sin\left\{\frac{1}{2}s\pi-(sr+p)x-t\,Sin\,px\right\}\frac{dx}{q^2-x^2}=\frac{\pi}{2q}\,Si(q)\,.\,e^{t\,Cos\,qp}\,Sin^{s}\,qr\,.$
$Cos\left\{\frac{1}{2}s\pi-(sr+p)q-t\,Sin\,qp\right\}$ (VIII, 655).

16) $\int e^{t\,Cos\,px}\,Si(x)\,.\,Sin^{s}\,rx\,.\,Cos\left\{\frac{1}{2}s\pi-(sr+p)x-t\,Sin\,px\right\}\frac{x\,dx}{q^2-x^2}=-\frac{\pi}{2}\,Si(q)\,.\,e^{t\,Cos\,qp}\,Sin^{s}\,qr\,.$
$Sin\left\{\frac{1}{2}s\pi-(sr+p)q-t\,Sin\,qp\right\}$ (VIII, 655).

F. Alg. rat. fract. à dén. bin. q^2-x^2;
Exponentielle;
Circ. Directe à plus. facteurs;
Une autre fonction.

TABLE 484.

Lim. 0 et ∞.

1) $\int e^{t\,Cos\,px+t_1\,Cos\,p_1x+\dots}\,Si(x)\,.\,Cos^{s}\,rx\,.\,Cos^{s_1}\,r_1x\dots Sin\left\{(sr+s_1r_1+\dots)x+t\,Sin\,px+\right.$
$\left.+\,t_1\,Sin\,p_1x+\dots\right\}\frac{dx}{q^2-x^2}=\frac{\pi}{2q}\,Si(q)\,.\left[2^{-s-s_1-\dots}-e^{t\,Cos\,qp+t_1\,Cos\,qp_1+\dots}\,Cos^{s}\,qr\,.\right.$
$\left.Cos^{s_1}\,qr_1\dots Cos\left\{(sr+s_1r_1+\dots)q+t\,Sin\,qp+t_1\,Sin\,qp_1+\dots\right\}\right]$ (VIII, 654).

2) $\int e^{t\,Cos\,px+t_1\,Cos\,p_1x+\dots}\,Si(x)\,.\,Cos^{s}\,rx\,.\,Cos^{s_1}\,r_1x\dots Cos\left\{(sr+s_1r_1+\dots)x+t\,Sin\,px+\right.$
$\left.+\,t_1\,Sin\,p_1x+\dots\right\}\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\left[-2^{-s-s_1-\dots}\,Ci(q)+Si(q)\,.\,e^{t\,Cos\,qp+t_1\,Cos\,qp_1+\dots}\right.$
$\left.Cos^{s}\,qr\,.\,Cos^{s_1}\,qr_1\dots Sin\left\{(sr+s_1r_1+\dots)q+t\,Sin\,qp+t_1\,Sin\,qp_1+\dots\right\}\right]$ (VIII, 654).

3) $\int e^{t\,Cos\,px+t_1\,Cos\,p_1x+\dots}\,Si(x)\,.\,Sin^{s}\,rx\,.\,Sin^{s_1}\,r_1x\dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots)x-\right.$
$\left.-\,t\,Sin\,px-t_1\,Sin\,p_1x-\dots\right\}\frac{dx}{q^2-x^2}=\frac{\pi}{2q}\,Si(q)\,.\left[-2^{-s-s_1-\dots}+e^{t\,Cos\,qp+t_1\,Cos\,qp_1+\dots}\,Si(q)\,.\right.$
$\left.Sin^{s}\,qr\,.\,Sin^{s_1}\,qr_1\dots Cos\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots)q-t\,Sin\,qp-t_1\,Sin\,qp_1-\dots\right\}\right]$
(VIII, 657).

4) $\int e^{t\,Cos\,px+t_1\,Cos\,p_1x+\dots}\,Si(x)\,.\,Sin^{s}\,rx\,.\,Sin^{s_1}\,r_1x\dots Cos\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots)x-\right.$
$\left.-\,t\,Sin\,px-t_1\,Sin\,p_1x-\dots\right\}\frac{x\,dx}{q^2-x^2}=-\frac{\pi}{2}\left[-2^{-s-s_1-\dots}\,Ci(q)+e^{t\,Cos\,qp+t_1\,Cos\,qp_1+\dots}\,Si(q)\,.\right.$
$\left.Sin^{s}\,qr\,.\,Sin^{s_1}\,qr_1\dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots)q-t\,Sin\,qp-t_1\,Sin\,qp_1-\dots\right\}\right]$
(VIII, 657).

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F. Alg. rat. fract. à dén. bin. q^2-x^2; Esponentielle; Circ. Directe à plus. facteurs; Une autre fonction.	TABLE 484, suite.	Lim. 0 et ∞.

5) $\int e^{t\,Cos\,px+\dots}\,Si(x)\,.\,Cos^s rx\dots Sin^n ux\dots Sin\left\{(n+\dots)\frac{1}{2}\pi-(sr+\dots+nu+\dots)x-t\,Sin\,px-\dots\right\}$
$\frac{dx}{q^2-x^2}=\frac{\pi}{2q}Si(q).\Big[e^{t\,Cos\,qp+\dots}Cos^s qr\dots Sin^n qu\dots Cos\left\{(n+\dots)\frac{1}{2}\pi-(sr+\dots+nu+\dots)q-\right.$
$\left.-t\,Sin\,qp-\dots\right\}-2^{-s-\dots-n-\dots}\Big]$ (VIII, 658).

6) $\int e^{t\,Cos\,px+\dots}Si(x)\,.\,Cos^s rx\dots Sin^n ux\dots Cos\left\{(n+\dots)\frac{1}{2}\pi-(sr+\dots+nu+\dots)x-\right.$
$\left.-t\,Sin\,px-\dots\right\}\frac{x\,dx}{q^2-x^2}=-\frac{\pi}{2}\left\{Si(q).e^{t\,Cos\,qp+\dots}Cos^s qr\dots Sin^n qu\dots Sin\left\{(n+\dots)\frac{1}{2}\pi-\right.\right.$
$\left.\left.-(sr+\dots+nu+\dots)q-t\,Sin\,qp-\dots\right\}+2^{-s-\dots-n-\dots}\cdot Ci(q)\right\}$ (VIII, 658).

7) $\int e^{t\,Cos\,px+\dots}Si(x)\,.\,Cos^s rx\dots Sin^n ux\dots Sin\left\{(n+\dots)\frac{1}{2}\pi-wx-t\,Sin\,px-\dots\right\}\frac{dx}{q^2-x^2}=$
$=\frac{\pi}{2q}Si(q)\,.\,e^{t\,Cos\,qp+\dots}Cos^s qr\dots Sin^n qu\dots Cos\left\{(n+\dots)\frac{1}{2}\pi-wq-t\,Sin\,qp-\dots\right\}$
(VIII, 659).

8) $\int e^{t\,Cos\,px+\dots}Si(x).Cos^s rx\dots Sin^n ux\dots Cos\left\{(n+\dots)\frac{1}{2}\pi-wx-t\,Sin\,px-\dots\right\}\frac{x\,dx}{q^2-x^2}=$
$=-\frac{\pi}{2}Si(q)\,.\,e^{t\,Cos\,qp+\dots}Cos^s qr\dots Sin^n qu\dots Sin\left\{(n+\dots)\frac{1}{2}\pi-wq-t\,Sin\,qp-\dots\right\}$
(VIII, 659).

Dans 7) et 8) on a $w>sr+\dots+nu+\dots$

F. Alg. rat. fract. à dén. bin.; Logarithmique; Circulaire Directe; Une autre fonction.	TABLE 485.	Lim. diverses.

1) $\int_0^\infty\frac{Cos\,px\,.\,l(1+x^2)-2\,Sin\,px\,.\,Arctg\,x}{\left\{\frac{1}{2}l(1+x^2)\right\}^2+(Arctg\,x)^2}\,\frac{dx}{x^2+q^2}=\frac{\pi}{q}\left\{\frac{e^{-pq}}{l(1+q)}-\frac{1}{q}\right\}$ (IV, 570).

2) $\int_0^\infty\frac{Cos\left(\frac{1}{2}r\pi-px\right).l(1+x^2)+2\,Sin\left(\frac{1}{2}r\pi-px\right).Arctg\,x}{\left\{\frac{1}{2}l(1+x^2)\right\}^2+(Arctg\,x)^2}\,\frac{x^r\,dx}{x^2+q^2}=\frac{\pi q^{r-1}}{l(1+q)}e^{-pq}$

(IV, 570).

3) $\int_0^\infty \frac{Sin\, r x . l(1+p^2 x^2) + 2 Cos\, r x . Arctg\, p x}{\left\{\frac{1}{2} l(1+p^2 x^2)\right\}^2 + \{Arctg\, p x\}^2} \frac{x\, dx}{q^2+x^2} = \frac{\pi e^{-qr}}{l(1+pq)}$ (IV, 571*).

4) $\int_0^\infty l(Sin^2 r x) . Si(x) \frac{x\, dx}{q^2+x^2} = \frac{\pi}{2} \{Ei(-q) - Ei(q)\}\, l \frac{1-e^{-2qr}}{2}$ (VIII, 646).

5) $\int_0^\infty l(Sin^2 r x) . Ci(x) \frac{dx}{q^2+x^2} = \frac{\pi}{q} Ei(-q) . l \frac{e^{qr} - e^{-qr}}{2}$ (VIII, 646).

6) $\int_0^\infty l(Cos^2 r x) . Si(x) \frac{x\, dx}{q^2+x^2} = \frac{\pi}{2} \{Ei(-q) - Ei(q)\}\, l \frac{1+e^{-2qr}}{2}$ (VIII, 645).

7) $\int_0^\infty l(Cos^2 r x) . Ci(x) \frac{dx}{q^2+x^2} = \frac{\pi}{q} Ei(-q) . l \frac{e^{qr} + e^{-qr}}{2}$ (VIII, 645).

8) $\int_0^\infty l(Tg^2 r x) . Si(x) \frac{x\, dx}{q^2+x^2} = \frac{\pi}{2} \{Ei(-q) - Ei(q)\}\, l \frac{e^{qr} - e^{-qr}}{e^{qr} + e^{-qr}}$ (VIII, 647).

9) $\int_0^\infty l(Tg^2 r x) . Ci(x) \frac{dx}{q^2+x^2} = \frac{\pi}{q} Ei(-q) . l \frac{e^{qr} - e^{-qr}}{e^{qr} + e^{-qr}}$ (VIII, 645).

10) $\int_0^\infty l(Sin^2 r x) . Si(x) \frac{x\, dx}{q^2-x^2} = \pi \left\{ Ci(q) . l2 + \left(q r - \frac{1}{2}\pi\right) Si(q) \right\}$ (VIII, 647).

11) $\int_0^\infty l(Cos^2 r x) . Si(x) \frac{x\, dx}{q^2-x^2} = \pi \{ Ci(q) . l2 + q r\, Si(q) \}$ (VIII, 645).

12) $\int_0^\infty l(Tg^2 r x) . Si(x) \frac{x\, dx}{q^2-x^2} = -\frac{1}{2} \pi^2\, Si(q)$ (VIII, 647).

13) $\int_{-\infty}^\infty Cos(p\, Arctg\, q x) \frac{l(1+q^2 x^2)}{(1+q^2 x^2)^{\frac{1}{2}p}} \frac{dx}{1+x^2} = \frac{2\pi}{(1+q)^p} l(1+q)$ (IV, 571).

14) $\int_{-\infty}^\infty (e^{p\, Arctg\, q x} + e^{-p\, Arctg\, q x})\, Sin \left\{\frac{p}{2} l(1+q^2 x^2)\right\} \frac{dx}{1+x^2} = 2 q\, Sin \{p\, l(1+q)\}$ (IV, 571).

15) $\int_{-\infty}^\infty (e^{p\, Arctg\, q x} + e^{-p\, Arctg\, q x})\, Cos \left\{\frac{p}{2} l(1+q^2 x^2)\right\} \frac{dx}{1+x^2} = 2 \pi\, Cos \{p\, l(1+q)\}$ (IV, 571).

1) $\int_0^1 \{e^{q\sqrt{(1-x^2)}} - e^{-q\sqrt{(1-x^2)}}\} Sin\, qx . Sin(2a Arccos\, x) \frac{dx}{\sqrt{1-x^2}} = \frac{\pi}{2} \frac{(-1)^{a-1} q^{2a}}{1^{2a/1}}$ V. T. 271, N. 4.

2) $\int_0^1 \{e^{q\sqrt{(1-x^2)}} + e^{-q\sqrt{(1-x^2)}}\} Sin\, qx . Cos\{(2a-1) Arccos\, x\} \frac{dx}{\sqrt{1-x^2}} = \frac{\pi}{2} \frac{(-1)^{a-1} q^{2a-1}}{1^{2a-1/1}}$

V. T. 271, N. 5.

3) $\int_0^1 \{e^{q\sqrt{(1-x^2)}} - e^{-q\sqrt{(1-x^2)}}\} Cos\, qx . Sin\{(2a-1) Arccos\, x\} \frac{dx}{\sqrt{1-x^2}} = \frac{\pi}{2} \frac{(-1)^{a-1} q^{2a-1}}{1^{2a-1/1}}$

V. T. 271, N. 6.

4) $\int_0^1 \{e^{q\sqrt{(1-x^2)}} + e^{-q\sqrt{(1-x^2)}}\} Cos\, qx . Cos(2a Arccos\, x) \frac{dx}{\sqrt{1-x^2}} = \frac{\pi}{2} \frac{(-1)^{a} q^{2a}}{1^{2a/1}}$ V. T. 271, N. 7.

5) $\int_0^\infty Sin(q\, Arctg\, x) . lx \frac{dx}{x(1+x^2)^{\frac{1}{2}q}} = -\frac{\pi}{2} \{A + Z'(q)\}$ V. T. 307, N. 11.

6) $\int_0^\infty Cos(q\, Arctg\, x) . lx \frac{dx}{(1+x^2)^{\frac{1}{2}q}} = -\frac{\pi}{2(q-1)}$ V. T. 307, N. 10.

7) $\int_0^\infty Sin(q\, Arccot\, x) . lx \frac{x^{q-1}\, dx}{(1+x^2)^{\frac{1}{2}q}} = \frac{\pi}{2} \{A + Z'(q)\}$ V. T. 486, N. 5.

8) $\int_0^\infty Cos(q\, Arccot\, x) . lx \frac{x^{q-2}\, dx}{(1+x^2)^{\frac{1}{2}q}} = \frac{\pi}{2(q-1)}$ V. T. 486, N. 6.

9) $\int_0^\infty Sin\left\{(r+1) Arctg\left(\frac{p}{qx}\right)\right\} . lx \frac{x^r}{\sqrt{p^2+q^2x^2}^{\,r+1}} dx = \frac{\pi}{2q^{r+1}} \left\{l\frac{p}{q} + A + Z'(r+1)\right\}$

V. T. 307, N. 11.

10) $\int_0^\infty Cos\left\{(r+1) Arctg\left(\frac{p}{qx}\right)\right\} . lx \frac{x^{r-1}}{\sqrt{p^2+q^2x^2}^{\,r+1}} dx = \frac{\pi}{2prq^r}$ V. T. 307, N. 10.

11) $\int_0^\infty e^{s\, Cos\, rx}\, Cos\left\{s\, Sin\, rx + a\, Arctg\frac{x}{q}\right\} \frac{dx}{(q^2+x^2)^{\frac{1}{2}a}} = 0$ (H, 64).

ADDITIONS.

T. 14. 11) $\int \frac{dx}{\sqrt{(1-x^2)(1-x^2+p^2x^2)}} = \mathrm{F}'(\sqrt{1-p^2})$ (VIII, 344).

T. 17. 24) $\int \frac{x^p\,dx}{(2+x^2)^q} = 2^{\frac{1}{2}p-q-\frac{1}{2}} \frac{\Gamma\left(\frac{p+1}{2}\right)\Gamma\left(q-\frac{p+1}{2}\right)}{\Gamma(q)}$ (VIII, 293).

T. 18. 16) $\int \left[\frac{1}{1+x^{2a}} - \frac{1}{1+x^2}\right] \frac{dx}{x} = 0$ (VIII, 701).

17) $\int \left[\frac{1}{1+x^{2a}} - \frac{1}{1+x^{2b}}\right] \frac{dx}{x} = 0$ (VIII, 702).

18) $\int \frac{\left(x-\frac{1}{x}\right)^p}{\left(x^2+\frac{1}{x^2}\right)^q} \left(x+\frac{1}{x}\right) \frac{dx}{x} = 2^{\frac{1}{2}p-q+\frac{1}{2}}\, Cos^2 \frac{1}{2}p\pi \frac{\Gamma\left(\frac{p+1}{2}\right)\Gamma\left(q-\frac{p+1}{2}\right)}{\Gamma(q)}$ (VIII, 293).

T. 35. 32) $\int (Cot\, x - 1)^{r-1} \frac{dx}{Sin\, 2x} = \frac{\pi}{2\, Sin\, r\pi}$ (VIII, 545).

T. 41. 22) $\int Cos^{p+2r-2}x \,.\, Cos\, px\, dx = \frac{\pi}{2^{p+2r-1}} \frac{\Gamma(p+2r-1)}{\Gamma(p+r)\Gamma(r)}$ (VIII, 611).

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T. 59. 34) $\int \frac{Sin\,x\,.\,Cos\,x}{\sqrt{1-p^2\,Sin^2 x}^7}\,dx = \frac{1}{5p^2}\left[-1+\frac{1}{\sqrt{1-p^2}^5}\right]$

35) $\int \frac{Sin\,x\,.\,Cos^3 x}{\sqrt{1-p^2\,Sin x}^7}\,dx = \frac{1}{15p^4}\left[-(2+3p^2)+\frac{2}{\sqrt{1-p^2}^3}\right]$

36) $\int \frac{Sin\,x\,.\,Cos^5 x}{\sqrt{1-p^2\,Sin\,x}^7}\,dx = \frac{1}{15p^6}\left[-(8+4p^2+3p^4)+\frac{8}{\sqrt{1-p^2}}\right]$

37) $\int \frac{Sin\,x\,.\,Cos^7 x}{\sqrt{1-p^2\,Sin^2 x}^7}\,dx = \frac{1}{5p^8}\left[(16-8p^2-2p^4-p^6)-16\sqrt{1-p^2}\right]$

38) $\int \frac{Sin^3 x\,.\,Cos\,x}{\sqrt{1-p^2\,Sin^2 x}^7}\,dx = \frac{1}{15p^4}\left[2-\frac{2-5p^2}{\sqrt{1-p^2}^5}\right],$

39) $\int \frac{Sin^3 x\,.\,Cos^3 x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{2}{15p^6}\left[(4+p^2)-\frac{4-5p^2}{\sqrt{1-p^2}^3}\right]$

40) $\int \frac{Sin^3 x\,.\,Cos^5 x}{\sqrt{1-p^2\,Sin\,2x}^7}\,dx = \frac{2}{15p^8}\left[-(24-8p^2-p^4)+4\frac{6-5p^2}{\sqrt{1-p^2}}\right]$

41) $\int \frac{Sin^5 x\,.\,Cos\,x}{\sqrt{1-p^2\,Sin^2 x}^7}\,dx = \frac{1}{15p^6}\left[-8+\frac{8-20p^2+25p^4}{\sqrt{1-p^2}^5}\right]$

42) $\int \frac{Sin^5 x\,.\,Cos^3 x}{\sqrt{1-p^2\,Sin^2 x}^7}\,dx = \frac{2}{15p^8}\left[4(6-p^2)-\frac{24-40p^2+15p^4}{\sqrt{1-p^2}^3}\right]$

43) $\int \frac{Sin^7 x\,.\,Cos\,x}{\sqrt{1-p^2\,Sin^2 x}^7}\,dx = \frac{1}{5p^8}\left[-16+\frac{16-40p^2+30p^4-5p^6}{\sqrt{1-p^2}^5}\right]$

Sur 34) à 43) voyez **M., D. 16, 28.**

T. 62. 17) $\int Sin^{2b+1} x\,.\,Sin\{(2a+1)x\}\,dx = \frac{(-1)^a\pi}{2^{2b+1}}\binom{2b+1}{b-a}$ (VIII, 275).

18) $\int Sin^{2b} x\,.\,Cos\,2ax\,dx = \frac{(-1)^a\pi}{2^{2b}}\binom{2b}{b-a}$ (VIII, 275).

19) $\int Cos^{2b} x\,.\,Cos\,2ax\,dx = \frac{\pi}{2^{2b}}\binom{2b}{b-a}$ (VIII, 275).

20) $\int Cos^{2b+1} x\,.\,Cos\{(2a+1)x\}\,dx = \frac{\pi}{2^{2b+1}}\binom{2b+1}{b-a}$ (VIII, 275).

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T. 65. 23) $\int \frac{Sin\, x}{1-2p\, Cos\, x+p^2}\, dx = \frac{1}{p}\, l\, \frac{1-p}{1+p}\, [p^2<1], = \frac{1}{p}\, l \frac{p-1}{p+1}\, [p^2>1]$ (VIII, 679*).

T. 87. 9) $\int \frac{(1+xi)^{2a-1}\left\{e^{p(i-x)}+e^{p(x-i)}\right\}-(1-xi)^{2a-1}\left\{e^{p(x+i)}+e^{-p(x-i)}\right\}}{i}\, \frac{dx}{e^{\pi x}-1} =$

$= (-1)^a \sum_a^\infty \left\{\frac{2^{2n-1}-1}{n} B_{2n-1} + (-1)^n \frac{2n-1}{2n}\right\} \frac{p^{2n-2a}}{1^{2n-2a/1}}$ (VIII, 578).

10) $\int \frac{(1+xi)^{2a-1}\left\{e^{p(i-x)}+e^{p(x-i)}\right\}-(1-xi)^{2a-1}\left\{e^{p(x+i)}+e^{-p(x+i)}\right\}}{i}\, \frac{dx}{e^{2\pi x}-1} =$

$= (-1)^a \sum_a^\infty \left\{\frac{1}{n} B_{2n-1} + (-1)^{n-1} \frac{n-1}{n}\right\} \frac{p^{2n-2a}}{1^{2n-2a/1}}$ (VIII, 578).

T. 97. 24) $\int \frac{x}{e^{px}-e^{-px}}\, \frac{dx}{q^2+x^2} = \frac{\pi}{4pq} + \frac{\pi}{2} \sum_1^\infty \frac{(-1)^n}{2pq+(2n-1)\pi}$ (VIII, 636*).

T. 107. 24) $\int \sqrt{\left(l\frac{1}{x}\right)}\, .x^{p-1}\, dx = \frac{1}{2p}\sqrt{\frac{\pi}{p}}$ (VIII, 542).

T. 123. 19) $\int (x^p-1)^a (x^q-1) \frac{dx}{lx} = \sum_0^a (-1)^n \binom{a}{n}\, l \frac{q+(a-n)p+1}{(a-n)p+1}$ (VIII, 347).

T. 130. 25) $\int \frac{x^q-x^{-q}}{x^p+x^{-p}}\, \frac{dx}{x\, lx} = l\, Tg\left(\frac{p+q}{p}\, \frac{\pi}{4}\right)$ (VIII, 350).

T. 141. 14) $\int l\left(\frac{1+x^2}{x}\right).x^{2a-1}\, dx = \frac{1}{a}\, l2 + \frac{1}{2a^2} - \frac{1}{a}\sum_0^\infty \frac{(-1)^n}{2a+n+1}$ (VIII, 422).

T. 144. 18) $\int lx \frac{dx}{(1+x^2)^2} = l2$ (VIII, 590*).

T. 145. 38) $\int_{-1}^{+1} l(1-p^2x^2)^2 \frac{dx}{\sqrt{1-x^2}} = 4\pi\, l\frac{1+\sqrt{1-p^2}}{2}\, [p^2<1], = -4\pi\, l2p\, [p^2>1]$

(VIII, 550).

39) $\int_{-1}^{+1} l(p^2-x^2)^2 \frac{dx}{\sqrt{1-x^2}} = -4\pi\, l2\, [p^2<1], = 4\pi\, l\frac{p+\sqrt{p^2-1}}{2}\, [p^2>1]$

(VIII, 550).

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T. 151. 29) $\int Sin^s rx . Sin \left\{ s \left(\frac{1}{2} \pi - rx \right) \right\} \frac{dx}{x} = - \frac{\pi}{2^{s+1}}$ (H, 12).

30) $\int Cos^s rx . Sin\, srx \frac{dx}{x} = \frac{\pi}{2^{s+1}} (2^s - 1)$ (H, 11).

31) $\int Cos^s rx . Sin\, tx \frac{dx}{x} = \frac{\pi}{2}$ $[t > rs]$ (H, 24).

T. 152. 24) $\int Sin^s rx . Sin \left\{ s \left(\frac{1}{2} \pi - rx \right) \right\} . Sin\, x \frac{dx}{x} = - \frac{\pi}{2^{s+1}}$ (H, 13).

25) $\int Sin^s rx . Sin \left\{ s \left(\frac{1}{2} \pi - rx \right) \right\} . Cos\, x \frac{dx}{x} = - \frac{\pi}{2^{s+1}}$ (H, 12).

26) $\int Sin^s rx . Cos \left\{ s \left(\frac{1}{2} \pi - rx \right) \right\} . Sin\, x \frac{dx}{x} = \frac{\pi}{2^{s+1}}$ (H, 12).

27) $\int Cos^s rx . Sin\, srx . Cos\, x \frac{dx}{x} = \frac{\pi}{2^{s+1}} (2^s - 1)$ (H, 11).

28) $\int Cos^s rx . Cos\, srx . Sin\, x \frac{dx}{x} = \frac{\pi}{2^{s+1}}$ (H, 11). 29) $\int Cos^s rx . Sin\, tx . Cos\, x \frac{dx}{x} = \frac{\pi}{2}$ (H, 24).

30) $\int Cos^s rx . Cos\, tx . Sin\, x \frac{dx}{x} = 0$ (H, 24).

[Dans 29) et 30) on a $t > sr$].

T. 157. 29) $\int Sin^2 qx . Sin^2 rx . Sin\, px \frac{dx}{x^3} = \frac{1}{4} pr\pi \, [2q \geqq 2r + p > 2p], = \frac{1}{32} \pi \left\{ 16qr - (2q + 2r - p)^2 \right\}$

$[2r > p > 2(q - r)], = \frac{3}{8} q^2 \pi \, [2r = 2q = p], = \frac{1}{2} r^2 \pi \, [2r = p \leqq q], = \frac{1}{8} q^2 \pi \, [2r = p = q], =$

$= \frac{1}{8} q \pi (4r - q) [2q > p = 2r > q], = \frac{1}{16} \pi (4r^2 + p^2) [2q \geqq 2r + p > 4r], =$

$= \frac{1}{32} \pi \left[(2q + 2r - p)^2 - 8q(q - p) \right] [2q < 2r + s < 2s < 4q], = \frac{1}{8} \pi (2q^2 + r^2)$

$[2q = p > 2r], = \frac{1}{32} \pi \left\{ (2q + 2r - p)^2 + 2p^2 \right\} [2q < p > 2r], = \frac{1}{16} p^2 \pi$

$[p - 2r \geqq 2q < p]$ (E. O. A.).

30) $\int Sin^{2a} x . Cos\, px \frac{dx}{x^2} = \frac{\pi}{2^{2a+1}} \left\{ - \binom{2a}{a} p + 4 \sum_1^a (-1)^n \binom{2a}{a-n} n \right\}$ Enneper, Schl. Z. 11, 251.

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T. 158. 9) $\int (1 - Cos^{2a} x)\, Cos\, px \frac{dx}{x^2} = \frac{\pi}{2^{2a+1}} \left[p \left\{ \binom{2a}{a} - 2^{2a} \right\} + 2a \binom{2a}{a} \right]$

10) $\int (1 - Cos^{2a+1} x)\, Cos\, px \frac{dx}{x^2} = \frac{\pi}{2^{2a+1}} \left[-p . 2^{2a} + (2a+1) \binom{2a}{a} \right]$

11) $\int (1 - Cos^{2a} x)\, Sin\, px \frac{dx}{x^3} = \frac{\pi}{2^{2a+2}} \left[p^2 \left\{ \binom{2a}{a} - 2^{2a} \right\} + 4ap \binom{2a}{a} \right]$

12) $\int (1 - Cos^{2a+1} x)\, Sin\, px \frac{dx}{x^3} = \frac{\pi}{2^{2a+3}} \left[-p^2 . 2^{2a+1} + 4(2a+1)p \binom{2a}{a} \right]$

Sur 9) à 12) voyez Enneper, Schl. Z. 11, 251.

T. 160. 31) $\int Sin^2 px \frac{x\,dx}{q^2 + x^2} = \infty =$ 32) $\int Cos^2 px \frac{x\,dx}{q^2 + x^2}$ (VIII, 334).

T. 163. 20) $\int Cos^a x . Cos\, ax \frac{x\,dx}{q^2 + x^2} = \infty$ (V, 17).

21) $\int Cos^a x . Cos\, 2ax \frac{dx}{q^2 + x^2} = \frac{\pi}{2^{a+1} q} e^{-aq} (1 + e^{-2q})^a$ (V, 21).

22) $\int Cos^a x . Cos\, 2ax \frac{x\,dx}{q^2 + x^2} = -\frac{1}{2^{a+1}} \left[e^{aq} \sum_0^a \binom{a}{n} e^{2nq} Ei\{-q(a+2n)\} + e^{-aq} \sum_0^a \binom{a}{n} \right.$

$\left. e^{-2nq} Ei\{q(a+2n)\} \right]$ (V, 26).

23) $\int Cos^a x . Cos\, 3ax \frac{dx}{q^2 + x^2} = \frac{\pi}{2^{a+1} q} e^{-2aq} (1 + e^{-2q})^a$ (V, 21).

24) $\int Cos^a x . Cos\, 3ax \frac{x\,dx}{q^2 + x^2} = -\frac{1}{2^{a+1}} \left[e^{2aq} \sum_0^a \binom{a}{n} e^{2nq} Ei\{-2q(a+n)\} + e^{-2aq} \sum_0^a \binom{a}{n} \right.$

$\left. e^{-2nq} Ei\{2q(a+n)\} \right]$ (V, 26).

25) $\int Cos^a x . Cos\{(a-1)x\} \frac{x\,dx}{q^2 + x^2} = -\frac{1}{2^{a+1}} \left[e^{-q} \sum_0^a \binom{a}{n} e^{2nq} Ei\{q(1-2n)\} + \right.$

$\left. + e^{q} \sum_0^a \binom{a}{n} e^{-2nq} Ei\{q(2n-1)\} \right]$ (V, 27).

26) $\int Cos^a x . Cos\{(a+1)x\} \frac{x\,dx}{q^2 + x^2} = -\frac{1}{2^{a+1}} \left[e^{q} \sum_0^a \binom{a}{n} e^{2nq} Ei\{-q(2n+1)\} + \right.$

$\left. + e^{-q} \sum_0^a \binom{a}{n} e^{-2nq} Ei\{q(2n+1)\} \right]$ (V, 27).

T. 159. 29) $\int Sin\,qx\,.\,Sin^{2a}x\,\frac{dx}{x^{2b}}=\frac{(-1)^b}{2^{2a}\,1^{2b-1|1}}\left[\binom{2a}{a}q^{2b-1}\,lq+\sum_1^a(-1)^n\binom{2a}{a-n}\left\{(2n+q)^{2b-1}\,l(2n+q)-(2n-q)^{2b-1}\,l(2n-q)\right\}\right]$

30) $\int Sin\,qx\,.\,Sin^{2a+1}x\,\frac{dx}{x^{2b+1}}=\frac{(-1)^b}{2^{2a+1}\,1^{2b|1}}\sum_0^a(-1)^n\binom{2a+1}{a-n}\left\{(2n+q+1)^{2b}\,l(2n+q+1)-(2n-q+1)^{2b}\,l(2n-q+1)\right\}$

31) $\int Cos\,qx\,.\,Sin^{2a}x\,\frac{dx}{x^{2b-1}}=\frac{(-1)^b}{2^{2a}\,1^{2b-2|1}}\left[\binom{2a}{a}q^{2b-2}\,lq+\sum_1^a(-1)^n\binom{2a}{a-n}\left\{(2n+q)^{2b-2}\,l(2n+q)+(2n-q)^{2b-2}\,l(2n-q)\right\}\right]$

32) $\int Cos\,qx\,.\,Sin^{2a+1}x\,\frac{dx}{x^{2b}}=\frac{(-1)^b}{2^{2a+1}\,1^{2b-1|1}}\sum_0^a(-1)^n\binom{2a+1}{a-n}\left\{(2n+q+1)^{2b-1}\,l(2n+q+1)+(2n-q+1)^{2b-1}\,l(2n-q+1)\right\}$

33) $\int Sin\,qx\,.\,Sin^{2a}x\,\frac{dx}{x^{2b+2r-1}}=\frac{(-1)^{b-1}\pi\,Sec\,r\pi}{2^{2a+1}\,1^{2b+2r-2|1}}\left[\binom{2a}{a}q^{2b+2r-2}+\sum_1^a(-1)^n\binom{2a}{a-n}\left\{(2n+q)^{2b+2r-2}-(2n-q)^{2b+2r-2}\right\}\right]$

34) $\int Sin\,qx\,.\,Sin^{2a+1}x\,\frac{dx}{x^{2b+2r}}=\frac{(-1)^{b-1}\pi\,Sec\,r\pi}{2^{2a+2}\,1^{2b+2r-1|1}}\sum_0^a(-1)^n\binom{2a+1}{a-n}\left\{(2n+q+1)^{2b+2r-1}-(2n-q+1)^{2b+2r-1}\right\}$

35) $\int Cos\,qx\,.\,Sin^{2a}x\,\frac{dx}{x^{2b+2r-1}}=\frac{(-1)^b\pi\,Cosec\,r\pi}{2^{2a+1}\,1^{2b+2r-2|1}}\left[\binom{2a}{a}q^{2b+2r-2}+\sum_1^a(-1)^n\binom{2a}{a-n}\left\{(2n+q)^{2b+2r-2}+(2n-q)^{2b+2r-2}\right\}\right]$

36) $\int Cos\,qx\,.\,Sin^{2a+1}x\,\frac{dx}{x^{2b+2r}}=\frac{(-1)^b\pi\,Cosec\,r\pi}{2^{2a+2}\,1^{2b+2r-1|1}}\sum_0^a(-1)^n\binom{2a+1}{a-n}\left\{(2n+q+1)^{2b+2r-1}+(2n-q+1)^{2b+2r-1}\right\}$

37) $\int Sin\,qx\,.(1-Cos^{2a}x)\,\frac{dx}{x^{2r+2}}=\frac{\pi\,Cosec\,r\pi}{2^{2a+1}\,1^{2r+1|1}}\sum_1^a\binom{2a}{a-n}\left\{-2q^{2r+1}-(2n-q)^{2r+1}+(2n+q)^{2r+1}\right\}$

38) $\int Sin\,qx.(1-Cos^{2a+1}x)\,\frac{dx}{x^{2r+2}}=\frac{\pi\,Cosec\,r\pi}{1^{2a+2}\,1^{2r+1|1}}\sum_0^a\binom{2a+1}{a-n}\left\{-2q^{2r+1}-(2n-q+1)^{2r+1}+(2n+q+1)^{2r+1}\right\}$

39) $\int Cos\,qx.(1-Cos^{2a}x)\,\frac{dx}{x^{2r+1}}=\frac{\pi\,Cosec\,r\pi}{2^{2a+1}\,1^{2r|1}}\sum_1^a\binom{2a}{a-n}\left\{-2q^{2r}+(2n-q)^{2r}+(2n+q)^{2r}\right\}$

40) $\int Cos\,qx.(1-Cos^{2a+1}x)\,\frac{dx}{x^{2r+1}}=\frac{\pi\,Cosec\,r\pi}{2^{2a+2}\,1^{2r|1}}\sum_0^a\binom{2a+1}{a-n}\left\{-2q^{2r}+(2n-q+1)^{2r}+(2n+q+1)^{2r}\right\}$

Dans 29) à 36) on a $a \geqq b$. Dans 33), 34), 37), 38) on a $r^2 < \frac{1}{4}$. Dans 35), 36), 39), 40) on a $0 < r < 1$. Sur 29) à 40) voyez Enneper, Schl. Z. 11, 251.

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162. 35) $\int Sin^{s} rx . Sin \left(\frac{1}{2} s\pi - srx\right) \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{s+1}} \{1-(1-e^{-2qr})^{s}\}$ (H, 49).

36) $\int Sin^{2a} x . Sin 2ax \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+1} q} \sum_0^{2a} (-1)^n \binom{2a}{n} [e^{-2nq} Ei(2nq) - e^{2nq} Ei(-2nq)]$ (V, 31).

37) $\int Sin^{2a} x . Sin 4ax \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+1} q} \Big[e^{-2aq} \sum_0^{2a} (-1)^n \binom{2a}{n} e^{-2nq} Ei\{2q(a+n)\} -$

$- e^{2aq} \sum_0^{2a} (-1)^n \binom{2a}{n} e^{2nq} Ei\{-2q(a+n)\}\Big]$ (V, 37).

38) $\int Sin^{2a} x . Sin 6ax \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+1} q} \Big[e^{-4aq} \sum_0^{2a} (-1)^n \binom{2a}{n} e^{-2nq} Ei\{2q(2a+n)\} -$

$- e^{4aq} \sum_0^{2a} (-1)^n \binom{2a}{n} e^{2nq} Ei\{-2q(2a+n)\}\Big]$ (V, 38).

39) $\int Sin^{2a} x . Sin 6ax \frac{x\,dx}{q^2+x^2} = \frac{(-1)^a \pi}{2^{2a+1}} e^{-4aq} (1-e^{-2q})^{2a}$ (V, 50).

40) $\int Sin^{2a+1} x . Sin \{(2a+1)x\} \frac{x\,dx}{q^2+x^2} = \infty$ (V, 31).

41) $\int Sin^{2a+1} x . Sin \{(2a+1)2x\} \frac{dx}{q^2+x^2} = \frac{(-1)^a \pi}{2^{2a+2} q} e^{(2a+1)q} (1-e^{-2q})^{2a+1}$ (V, 41).

42) $\int Sin^{2a+1} x . Sin \{(2a+1)2x\} \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+2}} \Big[e^{(2a+1)q} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n}$

$e^{2nq} Ei\{-q(2a+2n+1)\} + e^{-(2a+1)q} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n} e^{-2nq} Ei\{q(2a+2n+1)\}\Big]$

(V, 49).

43) $\int Sin^{2a+1} x . Sin \{(2a+1)3x\} \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+2}} \Big[e^{(2a+1)2q} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n}$

$e^{2nq} Ei\{-2q(2a+n+1)\} + e^{-(2a+1)2q} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n} e^{-2nq} Ei\{2q(2a+n+1)\}\Big]$

(V, 49).

44) $\int Sin^{s} rx . Cos \left(\frac{1}{2} s\pi - srx\right) \frac{dx}{q^2+x^2} = \frac{\pi}{2^{s+1} q} (1-e^{-2qr})^{s}$ (H, 49).

45) $\int Sin^{2a} x . Cos 2ax \frac{x\,dx}{q^2+x^2} = \infty$ (V, 31).

46) $\int Sin^{2a} x . Cos 4ax \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+1}} \Big[e^{2aq} \sum_0^{2a} (-1)^n \binom{2a}{n} e^{2nq} Ei\{-2q(a+n)\} +$

$+ e^{-2aq} \sum_0^{2a} (-1)^n \binom{2a}{n} e^{-2nq} Ei\{2q(a+n)\}\Big]$ (V, 48).

47) $\int Sin^{2a} x . Cos 6ax \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+1}} \Big[e^{4aq} \sum_0^{2a} (-1)^n \binom{2a}{n} e^{2nq} Ei\{-2q(2a+n)\} +$

$+ e^{-4aq} \sum_0^{2a} (-1)^n \binom{2a}{n} e^{-2nq} Ei\{2q(2a+n)\}\Big]$ (V, 49).

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48) $\int Sin^{2a} x . Cos\, 6\, a\, x \frac{dx}{q^2+x^2} = \frac{(-1)^a \pi}{2^{2a+1}} e^{-4aq} (1-e^{-2q})^{2a}$ (V, 40).

49) $\int Sin^{2a+1} x . Cos\,\{(2a+1)x\} \frac{dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+2} q} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n} [e^{-2nq} Ei(2nq) -$

$- e^{2nq} Ei(-2nq)]$ (V, 31).

50) $\int Sin^{2a+1} x . Cos\,\{(2a+1)2x\} \frac{dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+2} q} \Big[e^{-(2a+1)q} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n}$

$e^{-2nq} Ei\{q(2a+2n+1)\} - e^{(2a+1)q} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n} e^{2nq} Ei\{-q(2a+2n+1)\} \Big]$

(V, 38).

51) $\int Sin^{2a+1} x . Cos\,\{(2a+1)3x\} \frac{dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+2} q} \Big[e^{-(2a+1)2q} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n}$

$e^{-2nq} Ei\{2q(2a+n+1)\} - e^{(2a+1)2q} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n} e^{2nq} Ei\{-2q(2a+n+1)\} \Big]$

(V, 38).

52) $\int Sin^{2a+1} x . Cos\,\{(2a+1)3x\} \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1} \pi}{2^{2a+2}} e^{-(4a+2)q} (1-e^{-2q})^{2a+1}$ (V, 50).

53) $\int Sin^{2a+1} x . Cos\, 2\, a\, x \frac{dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+2} q} \Big[e^q \sum_0^{2a+1} (-1)^n \binom{2a+1}{n} e^{-2nq} Ei\{q(2n-1)\} -$

$- e^{-q} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n} e^{2nq} Ei\{q(1-2n)\} \Big]$ (V, 38).

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164. 23) $\int Sin^{2a} x \,.\, Sin\, 2ax \,.\, Sin\, px \,\frac{x\,dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+2}} \Big[e^{pq} \sum_0^{2a} (-1)^n \binom{2a}{n} [e^{2nq} Ei\{-q(p+2n)\} - e^{-2nq} Ei\{q(2n-p)\}] - e^{-pq} \sum_0^{2a} (-1)^n \binom{2a}{n} [e^{2nq} Ei\{q(p-2n)\} - e^{-2nq} Ei\{q(p+2n)\}] \Big]$ (V, 45).

24) $\int Sin^{2a+1} x \,.\, Sin\{(2a+1)x\} \,.\, Sin\{(2a+1)2x\} \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}\pi}{2^{2a+3}} [(1-e^{-(4a+2)q})(1-e^{-2q})^{2a+1} + 1]$ (V, 44).

25) $\int Sin^{2a+1} x \,.\, Sin\{(2a+1)x\} \,.\, Sin\, px \frac{x\,dx}{q^2+x^2} = \frac{(-1)^a \pi}{2^{2a+3}} e^{-pq}(1-e^{(2a+1)2q})(1-e^{-2q})^{2a+1}$ $[p > 4a+2]$, $= \frac{(-1)^a\pi}{2^{2a+3}} \Big[(e^{-pq} - e^{pq})(1-e^{-2q})^{2a+1} + e^{pq} \sum_0^d (-1)^n \binom{2a+1}{n} e^{-2nq} + e^{-pq} \sum_0^d (-1)^n \binom{2a+1}{n} e^{2nq} \Big]$ [$p < 4a+2$, fractionn.], $= \frac{(-1)^a\pi}{2^{2a+3}} \Big[(e^{-pq} - e^{pq})(1-e^{-2q})^{2a+1} + e^{pq} \sum_0^{d-1} (-1)^n \binom{2a+1}{n} e^{-2nq} + e^{-pq} \sum_0^d (-1)^n \binom{2a+1}{n} e^{2nq} \Big]$ [$p<4a+2$, ent.] $\Big[d = \mathcal{E}\frac{1}{2}p \Big]$ (V, 44).

26) $\int Sin^{2a+1} x \,.\, Sin\{(2a+1)x\} \,.\, Sin\, px \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+3} q} \Big[e^{-pq} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n} [e^{2nq} Ei\{q(p-2n)\} + e^{-2nq} Ei\{q(p+2n)\}] - e^{pq} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n} [e^{2nq} Ei\{-q(p+2n)\} + e^{-2nq} Ei\{q(2n-p)\}] \Big]$ (V, 34).

27) $\int Sin^{2a} x \,.\, Sin\, 2ax \,.\, Cos\, 4ax \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}\pi}{2^{2a+2}} [(1-e^{-4aq})(1-e^{-2q})^{2a} - 1]$ (V, 47).

28) $\int Sin^{2a} x \,.\, Sin\, 2ax \,.\, Cos\, px \frac{x\,dx}{q^2+x^2} = \frac{(-1)^a\pi}{2^{2a+2}} e^{-pq}(1-e^{4aq})(1-e^{-2q})^{2a}$ $[p > 4a]$, $= \frac{(-1)^a\pi}{2^{2a+2}} \Big[(e^{pq} + e^{-pq})(1-e^{-2q})^{2a} - e^{pq} \sum_0^d (-1)^n \binom{2a}{n} e^{-2nq} - e^{-pq} \sum_0^d (-1)^n \binom{2a}{n} e^{2nq} \Big]$ [$p < 4a$, fract.], $= \frac{(-1)^a\pi}{2^{2a+2}} \Big[(e^{pq} + e^{-pq})(1-e^{-2q})^{2a} - e^{pq} \sum_0^{d-1} (-1)^n \binom{2a}{n} e^{-2nq} - e^{-pq} \sum_0^d (-1)^n \binom{2a}{n} e^{2nq} \Big]$ [$p<4a$, entier] $\Big[d = \mathcal{E}\frac{1}{2}p \Big]$ (V, 45, 46).

29) $\int Sin^{2a} x \,.\, Sin\, 2ax \,.\, Cos\, px \frac{dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+1} q} \Big[e^{-pq} \sum_0^{2a} (-1)^n \binom{2a}{n} [e^{2nq} Ei\{q(p-2n)\} - e^{-2nq} Ei\{q(p+2n)\}] + e^{pq} \sum_0^{2a} (-1)^n \binom{2a}{n} [e^{2nq} Ei\{-q(p+2n)\} - e^{-2nq} Ei\{q(2n-p)\}] \Big]$ (V, 36).

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30) $\int Sin^{2a+1} x . Sin\{(2a+1)x\} . Cos px \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+3}} \Big[e^{pq} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n}$

$[e^{2nq} Ei\{-q(p+2n)\} + e^{-2nq} Ei\{q(2n-p)\}] + e^{-pq} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n}$

$[e^{2nq} Ei\{q(p-2n)\} + e^{-2nq} Ei\{q(p+2n)\}]\Big]$ (V, 45).

31) $\int Sin^s rx . Sin\left(\frac{1}{2} s\pi - srx\right) . Tg 2rx \frac{dx}{q^2+x^2} = -\frac{\pi}{2^{s+1} q} \frac{1+e^{-2qr}}{1+e^{-4qr}} (1-e^{-2qr})^{s+1}$ (H, 148).

32) $\int Sin^s rx . Sin\left(\frac{1}{2} s\pi - srx\right) . Cot 2rx \frac{dx}{q^2+x^2} = \frac{\pi}{2^{s+1} q} \frac{1+e^{-4qr}}{1+e^{-2qr}} (1-e^{-2qr})^{s-1}$ (H, 148).

33) $\int Sin^{s-1} rx . Sin\left\{(s-1)\frac{1}{2}\pi - (s+1)rx\right\} . Tg 2rx \frac{dx}{q^2+x^2} = \frac{\pi}{2^s q} \frac{1+e^{-2qr}}{e^{2qr}+e^{-2qr}} (1-e^{-2qr})^s$ (H, 169).

34) $\int Sin^{s-1} rx . Sin\left\{(s-1)\frac{1}{2}\pi - (s+1)rx\right\} . Cot 2rx \frac{dx}{q^2+x^2} = \frac{\pi}{2^s q} \frac{1+e^{-4qr}}{1+e^{-2qr}}$

$(1-e^{-2qr})^{s-2} e^{-2qr}$ (H, 169).

35) $\int Sin^{2a} x . Cos 2ax . Sin 4ax \frac{x\,dx}{q^2+x^2} = \frac{(-1)^a \pi}{2^{2a+2}} [(1+e^{-4aq})(1-e^{-2q})^{2a} - 1]$ (V, 44).

36) $\int Sin^{2a} x . Cos 2ax . Sin px \frac{x\,dx}{q^2+x^2} = \frac{(-1)^a \pi}{2^{2a+2}} e^{-pq} (1+e^{-4aq})(1-e^{-2q})^{2a}$ $[p > 4a]$, $=$

$= \frac{(-1)^a \pi}{2^{2a+2}} \Big[(e^{-pq} - e^{pq})(1-e^{-2q})^{2a} + e^{pq} \sum_0^d (-1)^n \binom{2a}{n} e^{-2nq} + e^{-pq} \sum_0^d (-1)^n$

$\binom{2a}{n} e^{2nq}\Big]$ $[p < 4a$, fractionn.$]$, $= \frac{(-1)^a \pi}{2^{2a+2}} \Big[(e^{-pq} - e^{pq})(1-e^{-2q})^{2a} + e^{pq} \sum_0^{d-1} (-1)^n$

$\binom{2a}{n} e^{-2nq} + e^{-pq} \sum_0^d (-1)^n \binom{2a}{n} e^{2nq}\Big]$ $[p < 4a$, entier$]$ $\left[d = \mathcal{E}\frac{1}{2}p\right]$ (V, 43).

37) $\int Sin^{2a} x . Cos 2ax . Sin px \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+2} q} \Big[e^{-pq} \sum_0^{2a} (-1)^n \binom{2a}{n} [e^{2nq} Ei\{q(p-2n)\} +$

$+ e^{-2nq} Ei\{q(p+2n)\}] - e^{pq} \sum_0^{2a} (-1)^n \binom{2a}{n} [e^{2nq} Ei\{-q(p+2n)\} + e^{-2nq} Ei\{q(2n-p)\}]\Big]$

(V, 34).

38) $\int Sin^{2a+1} x . Cos\{(2a+1)x\} . Sin px \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+3}} \Big[e^{pq} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n}$

$[e^{2nq} Ei\{-q(p+2n)\} - e^{-2nq} Ei\{q(2n-p)\}] - e^{-pq} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n}$

$[e^{2nq} Ei\{q(p-2n)\} - e^{-2nq} Ei\{q(p+2n)\}]\Big]$ (V, 45).

164. 39) $\int Sin^{2a} x . Cos 2ax . Cos px \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+2}} \Big[e^{pq} \sum_0^{2a} (-1)^n \binom{2a}{n} [e^{2nq} Ei\{-q(p+2n)\} +$

$+ e^{-2nq} Ei\{q(2n-p)\}] + e^{-pq} \sum_0^{2a} (-1)^n \binom{2a}{n} [e^{2nq} Ei\{q(p-2n)\} +$

$+ e^{-2nq} Ei\{q(p+2n)\}] \Big]$ (V, 45).

40) $\int Sin^{2a+1} x . Cos \{(2a+1)x\} . Cos \{(2a+1)2x\} \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}\pi}{2^{2a+2}} \Big\{ (1+e^{-(4a+2)q})$

$(1-e^{-2q})^{2a+1} + 1 \Big\}$ (V, 47).

41) $\int Sin^{2a+1} x . Cos \{(2a+1)x\} . Cos px \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}\pi}{2^{2a+3}} e^{-pq} (1+e^{(4a+2)q})(1-e^{-2q})^{2a+1}$

$[p > 4a+2], = \frac{(-1)^{a-1}\pi}{2^{2a+3}} \Big[(e^{pq}+e^{-pq})(1-e^{-2q})^{2a+1} - e^{pq} \sum_0^{d} (-1)^n \binom{2a+1}{n} e^{-2nq} -$

$- e^{-pq} \sum_0^{d} (-1)^n \binom{2a+1}{n} e^{2nq} \Big]$ [$p < 4a+2$, fractionn.], $= \frac{(-1)^{a-1}\pi}{2^{2a+3}} \Big[(e^{pq}+e^{-pq})$

$(1-e^{-2q})^{2a+1} - e^{pq} \sum_0^{d-1} (-1)^n \binom{2a+1}{n} e^{-2nq} - e^{-pq} \sum_0^{d} (-1)^n \binom{2a+1}{n} e^{2nq} \Big]$

[$p < 4a+2$, entier] $\Big[d = \mathcal{E} \frac{1}{2} p \Big]$ (V, 46, 47).

42) $\int Sin^{2a+1} x . Cos \{(2a+1)x\} . Cos px \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+2} q} \Big[e^{-pq} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n}$

$[e^{2nq} Ei\{q(p-2n)\} - e^{-2nq} Ei\{q(p+2n)\}] + e^{pq} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n}$

$[e^{2nq} Ei\{-q(p+2n)\} - e^{-2nq} Ei\{q(2n-p)\}] \Big]$ (V, 36).

43) $\int Sin^s rx . Cos \left(\frac{1}{2} s\pi - srx\right) . Tg 2rx \frac{x\,dx}{q^2+x^2} = -\frac{\pi}{2^{s+1}} \frac{1+e^{-2qr}}{1+e^{-4qr}} (1-e^{-2qr})^{s+1}$ (H, 148).

44) $\int Sin^s rx . Cos \left(\frac{1}{2} s\pi - srx\right) . Cot 2rx \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{s+1}} \frac{1+e^{-4qr}}{1+e^{-2qr}} (1-e^{-2qr})^{s-1}$ (H, 148).

45) $\int Sin^{s-1} rx . Cos \left\{\frac{1}{2}(s-1)\pi - (s+1)rx\right\} . Tg 2rx \frac{x\,dx}{q^2+x^2} = -\frac{\pi}{2^s} \frac{1+e^{-2qr}}{e^{2qr}+e^{-2qr}} (1-e^{-2qr})^s$

(H, 169).

46) $\int Sin^{s-1} rx . Cos \left\{\frac{1}{2}(s-1)\pi - (s+1)rx\right\} . Cot 2rx \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^s} \frac{1+e^{-4qr}}{1+e^{-2qr}}$

$(1-e^{-2qr})^{s-2} e^{-2qr}$ (H, 169).

47) $\int Cos^a x . Sin ax . Cos 2ax \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{a+2}} [(e^{-2aq}-1)(1+e^{-2q})^a + 1]$ (V, 25).

48) $\int Cos^a x . Cos ax . Sin 2ax \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{a+2}} [(1+e^{-2aq})(1+e^{-2q})^a - 1]$ (V, 24).

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T. 166. 30) $\int Sin^s rx . Sin\left(\frac{1}{2}s\pi - srx\right) . Tg\, 2rx \frac{dx}{q^2-x^2} = \frac{\pi}{2q} Sin^s qr . Tg\, 2qr . Cos\left(\frac{1}{2}s\pi - sqr\right)$ (H, 148).

31) $\int Sin^s rx . Sin\left(\frac{1}{2}s\pi - srx\right) . Cot\, 2rx \frac{dx}{q^2-x^2} = \frac{\pi}{2q} Sin^s qr . Cot\, 2qr . Cos\left(\frac{1}{2}s\pi - sqr\right)$ (H, 148).

32) $\int Sin^{s-1} rx . Sin\left\{(s-1)\frac{1}{2}\pi - (s+1)rx\right\} . Tg\, 2rx \frac{dx}{q^2-x^2} = \frac{\pi}{2q} Sin^{s-1} qr . Tg\, 2qr . Cos\left\{(s-1)\frac{1}{2}\pi - (s+1)qr\right\}$ (H, 171).

33) $\int Sin^{s-1} rx . Sin\left\{(s-1)\frac{1}{2}\pi - (s+1)rx\right\} . Cot\, 2rx \frac{dx}{q^2-x^2} = \frac{\pi}{2q} Sin^{s-1} qr . Cot\, 2qr . Cos\left\{(s-1)\frac{1}{2}\pi - (s+1)qr\right\}$ (H, 171).

34) $\int Sin^s rx . Cos\left(\frac{1}{2}s\pi - srx\right) . Tg\, 2rx \frac{x\,dx}{q^2-x^2} = -\frac{\pi}{2} Sin^s qr . Tg\, 2qr . Sin\left(\frac{1}{2}s\pi - sqr\right)$ (H, 148).

35) $\int Sin^s rx . Cos\left(\frac{1}{2}s\pi - srx\right) . Cot\, 2rx \frac{x\,dx}{q^2-x^2} = -\frac{\pi}{2} Sin^s qr . Cot\, 2qr . Sin\left(\frac{1}{2}s\pi - sqr\right)$ (H, 148).

36) $\int Sin^{s-1} rx . Cos\left\{(s-1)\frac{1}{2}\pi - (s+1)rx\right\} . Tg\, 2rx \frac{x\,dx}{q^2-x^2} = \frac{\pi}{2} Sin^{s-1} qr . Tg\, 2qr . Sin\left\{(s-1)\frac{1}{2}\pi - (s+1)qr\right\}$ (H, 171).

37) $\int Sin^{s-1} rx . Cos\left\{(s-1)\frac{1}{2}\pi - (s+1)rx\right\} . Cot\, 2rx \frac{x\,dx}{q^2-x^2} = \frac{\pi}{2} Sin^{s-1} qr . Cot\, 2qr . Sin\left\{(s-1)\frac{1}{2}\pi - (s+1)qr\right\}$ (H, 171).

T. 180. 21) $\int \frac{Sin\{(2a-1)px\}}{Sin\, px} Sin^{2b} 2ax \frac{dx}{x^2} = \frac{a\pi}{2^{2b-1}}\left\{-\frac{a-1}{2}\binom{2b}{b}p + 2(2a-1)\sum_1^b (-1)^n \binom{2b}{b-n} n\right\}$

22) $\int \frac{Sin\, 2apx}{Sin\, px} Sin^{2b} 2ax \frac{dx}{x^2} = \frac{a\pi}{2^{2b-1}}\left\{-\frac{a}{2}\binom{2b}{b}p + 4a\sum_1^b (-1)^n \binom{2b}{b-n} n\right\}$

23) $\int \frac{Cos\{(4a-1)px\}}{Cos\, px} Sin^{2b} 4ax \frac{dx}{x^2} = \frac{a\pi}{2^{2b-2}}\left\{\frac{p}{2}\binom{2b}{b} + 2\sum_1^b (-1)^n \binom{2b}{b-n} n\right\}$

Sur 21) à 23) v. Enneper, Schl. Z. 11, 251.

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T. 172. 23) $\int Sin^s rx . Sin\left(\frac{1}{2}s\pi - tx\right)\frac{dx}{x(q^2+x^2)} = \frac{\pi}{2^{s+1}q^2}(e^{qr}-e^{-qr})^s e^{-qt}$ (H, 163).

24) $\int Sin^s rx . Sin\left(\frac{1}{2}s\pi - tx\right)\frac{dx}{x(q^2-x^2)} = \frac{\pi}{2q^2} Sin^s qr . Cos\left(\frac{1}{2}s\pi - qt\right)$ (H, 164).

25) $\int Sin^s rx . Sin\left(\frac{1}{2}s\pi - tx\right)\frac{dx}{x(4q^4+x^4)} = \frac{\pi}{2^{s+3}q^4}(e^{2qr} - 2\, Cos\, 2qr + e^{-2qr})^{\frac{1}{2}s} e^{-qt}$

$Cos\left\{s\, Arctg\left(\frac{Sin\, 2qr}{e^{2qr} - Cos\, 2qr}\right) + q(t-sr)\right\}$ (H, 163).

26) $\int Sin^s rx . Sin\left(\frac{1}{2}s\pi - tx\right)\frac{dx}{x(q^4-x^4)} = \frac{\pi}{4q^4}\left\{2^{-s}(e^{qr}-e^{-qr})^s e^{-qt} + Sin^s qr .\right.$

$\left. Cos\left(\frac{1}{2}s\pi - qt\right)\right\}$ (H, 164).

27) $\int Cos^s rx . Sin\, tx \frac{dx}{x(q^2+x^2)} = -\frac{\pi}{2^{s+1}q^2}(e^{qr}+e^{-qr})^s e^{-qt}$ (H, 163).

28) $\int Cos^s rx . Sin\, tx \frac{dx}{x(q^2-x^2)} = -\frac{\pi}{2q^2} Cos^s qr . Cos\, qt$ (H, 164).

29) $\int Cos^s rx . Sin\, tx \frac{dx}{x(4q^4+x^4)} = -\frac{\pi}{2^{s+3}q^4}(e^{2qr} + 2\, Cos\, 2qr + e^{-2qr})^{\frac{1}{2}s} e^{-qt}$

$Cos\left\{s\, Arctg\left(\frac{Sin\, 2qr}{e^{2qr} + Cos\, 2qr}\right) - q(t-sr)\right\}$ (H, 163).

30) $\int Cos^s rx . Sin\, tx \frac{dx}{x(q^4-x^4)} = -\frac{\pi}{4q^4}\left\{2^{-s}(e^{qr}+e^{-qr})^s e^{-qt} + Cos^s qr . Cos\, qt\right\}$ (H, 163).

Dans 23) à 30) on a $t > sr$.

T. 175. 18) $\int Cos\, px \frac{dx}{x^2(x^2+2^2)(x^2+4^2)\ldots(x^2+4a^2)} = \frac{(-1)^a \pi}{2^{2a+1} 1^{2a/1}} \sum_0^a (-1)^n \binom{2a}{n} \frac{1}{a-n} e^{p(2n-2a)}$

(VIII, 434).

T. 191. 30) $\int \frac{Sin^{s-2} rx}{Cos\, rx} Sin\left\{(s-1)\frac{1}{2}\pi - (s+1)rx\right\}\frac{dx}{q^2+x^2} = \frac{\pi e^{-4qr}}{2^{s-2}q}\frac{(1-e^{-2qr})^{s-2}}{1+e^{-2qr}}$ (H, 169).

31) $\int \frac{Sin^{s-2} rx}{Cos\, rx} Cos\left\{(s-1)\frac{1}{2}\pi - (s+1)rx\right\}\frac{x\,dx}{q^2+x^2} = \frac{\pi e^{-4qr}}{2^{s-2}}\frac{(1-e^{-2qr})^{s-2}}{1+e^{-2qr}}$ (H, 169).

32) $\int \frac{Sin^{s-2} rx}{Cos\, rx} Sin\left\{(s-1)\frac{1}{2}\pi - (s+1)rx\right\}\frac{dx}{q^2-x^2} = \frac{\pi}{2q}\frac{Sin^{s-2} qr}{Cos\, qr} Cos\left\{(s-1)\frac{1}{2}\pi - (s+1)qr\right\}$

(H, 171).

33) $\int \frac{Sin^{s-2} rx}{Cos\, rx} Cos\left\{(s-1)\frac{1}{2}\pi - (s+1)rx\right\}\frac{x\,dx}{q^2-x^2} = \frac{\pi}{2}\frac{Sin^{s-2} qr}{Cos\, qr} Sin\left\{(s-1)\frac{1}{2}\pi - (s+1)qr\right\}$

(H, 171).

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T. 204. 35) $\int \frac{Cos\,x - 2\,Cos\,2\,x.(Cos\,x + p\,Sin\,x)}{\sqrt{Cos\,x + p\,Sin\,x}^3} \frac{x\,dx}{Sin\,x.\sqrt{Sin\,x}} = \frac{4}{\sqrt{p}}\,l\{\sqrt{p} + \sqrt{1+p}\} - \frac{\pi}{\sqrt{1+p}}$ (VIII, 589*).

36) $\int \frac{Cos\,x - 2\,Cos\,2\,x.(Cos\,x - p\,Sin\,2\,x)}{\sqrt{Cos\,x - p\,Sin\,x}^3} \frac{x\,dx}{Sin\,x.\sqrt{Sin\,x}} = \frac{4}{\sqrt{p}}\,Arcsin(\sqrt{p}) - \frac{\pi}{\sqrt{1-p}}$ (VIII, 589*).

T. 224. 11) $\int \frac{x\,dx}{Cos(p-x).Cos\,x} = p\,Cosec\,p.\,l\,Sec\,p$ (VIII, 338).

T. 226. 6) $\int_q^\infty Sin\,px\,\frac{dx}{x} = \frac{\pi}{2} - \mathrm{Si}(pq)$ (VIII, 289).

T. 269. 10) $\int e^{-q^2x^2}\,Cos\,px\,dx = \frac{1}{q}\,e^{-\frac{p^2}{4q^2}}\,\sqrt{\pi}$ (VIII, 516*).

T. 278. 18) $\int e^{p\,Cos\,x}\,Cos(p\,Sin\,x)\,\frac{Sin\{(2a+1)x\}}{Sin\,x}\,dx = \frac{\pi}{p}\left[1 + \sum_0^a \frac{p^{2a-n}}{1^{2a-n-1/1}}\right]$ Vernier, A. M. 15, 165.

T. 325. 13) $\int l(1-p^2+p^2\,Cos^4\,x)\,\frac{dx}{\sqrt{1-p^2\,Sin^2\,x}} = \frac{1}{2}\,\mathrm{F}'(p).\,l\,\frac{4(1-p^2)^2}{p} - \frac{\pi}{4}\,\mathrm{F}'(\sqrt{1-p^2})$

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T. 330. 19) $\int l\,Sin\,x.\,dx = -\pi\,l2$ (VIII, 257). 20) $\int l((Sin\,x)).\,dx = -\pi\,l2 + 2\,a\,\pi^2\,i$ (VIII, 258).

21) $\int l((-Sin\,x)).\,dx = -\pi\,l2 + (2\,a+1)\,\pi^2\,i$ (VIII, 258).

22) $\int l\,Cos^2\,x.\,dx = -2\pi\,l2$ (VIII, 257). 23) $\int l\,Tg^2\,x.\,dx = 0$ (VIII, 257).

T. 332. 11) $\int l\left\{\frac{1+2p\,Cos\,x+p^2}{1-2p\,Cos\,x+p^2}\right\}.\,Sin\{(2\,a+1)x\}\,dx = 2\pi p^{2a+1}\,\frac{(-1)^a}{2\,a+1}$ (VIII, 277).

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$$8)\int e^{-px}\,Sin\,qx\,.\,Sin^{2a}x\,\frac{dx}{x^{2b+2r-1}}=\frac{\pi\,Cosec\,2r\pi}{2^{2a}\,\Gamma(2b+2r-1)}\left(\binom{2a}{a}(p^2+q^2)^{b+r-1}\,Sin\left\{(b+r-1)\,2\,Arctg\,\frac{q}{p}\right\}+\sum_1^a(-1)^{n-1}\binom{2a}{a-n}\left[\{p^2+(2n-q)^2\}^{b+r-1}\,Sin\left\{(b+r-1)\,2\,Arctg\left(\frac{2n-q}{p}\right)\right\}-\right.\right.$$

$$\left.\left.-\{p^2+(2n+q)^2\}^{b+r-1}\,Sin\left\{(b+r-1)\,2\,Arctg\left(\frac{2n+q}{p}\right)\right\}\right]\right)$$

$$9)\int e^{-px}\,Sin\,qx\,.\,Sin^{2a+1}x\,\frac{dx}{x^{2b+2r}}=\frac{\pi\,Cosec\,2r\pi}{2^{2a+1}\,\Gamma(2b+2r)}\sum_0^a(-1)^n\binom{2a+1}{a-n}\left[\{p^2+(2n-q+1)^2\}^{b+r-\frac{1}{2}}\,Cos\left\{(2b+2r-1)\,Arctg\left(\frac{2n-q+1}{p}\right)\right\}-\{p^2+(2n+q+1)^2\}^{b+r-\frac{1}{2}}\,Cos\left\{(2b+2r-1)\,Arctg\left(\frac{2n+q+1}{p}\right)\right\}\right]$$

$$10)\int e^{-px}\,Cos\,qx\,.\,Sin^{2a}x\,\frac{dx}{x^{2b+2r-1}}=\frac{\pi\,Cosec\,2r\pi}{2^{2a}\,\Gamma(2b+2r-1)}\left(-\binom{2a}{a}(p^2+q^2)^{b+r-1}\,Cos\left\{(b+r-1)\,2\,Arctg\,\frac{q}{p}\right\}+\sum_1^a(-1)^{n-1}\binom{2a}{a-n}\left[\{p^2+(2n-q)^2\}^{b+r-1}\,Cos\left\{(b+r-1)\,2\,Arctg\left(\frac{2n-q}{p}\right)\right\}+\right.\right.$$

$$\left.\left.+\{p^2+(2n+q)^2\}^{b+r-1}\,Cos\left\{(b+r-1)\,2\,Arctg\left(\frac{2n+q}{p}\right)\right\}\right]\right)$$

$$11)\int e^{-px}\,Cos\,qx\,.\,Sin^{2a+1}x\,\frac{dx}{x^{2b+2r}}=\frac{\pi\,Cosec\,2r\pi}{2^{2a+1}\,\Gamma(2b+2r)}\sum_0^a(-1)^{n-1}\binom{2a+1}{a-n}$$

$$\left[\{p^2+(2n-q+1)^2\}^{b+r-\frac{1}{2}}\,Sin\left\{(2b+2r-1)\,Arctg\left(\frac{2n-q+1}{p}\right)\right\}+\{p^2+(2n+q+1)^2\}^{b+r-\frac{1}{2}}\,Sin\left\{(2b+2r-1)\,Arctg\left(\frac{2n+q+1}{p}\right)\right\}\right]$$

$$12)\int e^{-px}\,Sin\,qx\,.\,(1-Cos^{2a}x)\,\frac{dx}{x^{2r+2}}=\frac{\pi\,Cosec\,2r\pi}{2^{2a}\,\Gamma(2r+2)}\sum_1^a\binom{2a}{a-n}\left[-2\,(p^2+q^2)^{\frac{2r+1}{2}}\,Sin\left\{(2r+1)\,Arctg\,\frac{q}{p}\right\}-\{p^2+(2n-q)^2\}^{\frac{2r+1}{2}}\,Sin\left\{(2r+1)\,Arctg\left(\frac{2n-q}{p}\right)\right\}+\right.$$

$$\left.+\{p^2+(2n+q)^2\}^{\frac{2r+1}{2}}\,Sin\left\{(2r+1)\,Arctg\left(\frac{2n+q}{p}\right)\right\}\right]$$

$$13)\int e^{-px}\,Sin\,qx\,.\,(1-Cos^{2a+1}x)\,\frac{dx}{x^{2r+2}}=\frac{\pi\,Cosec\,2r\pi}{2^{2a+1}\,\Gamma(2r+2)}\sum_0^a\binom{2a+1}{a-n}\left[-2\,(p^2+q^2)^{\frac{2r+1}{2}}\,Cos\left\{(2r+1)\,Arctg\,\frac{q}{p}\right\}-\{p^2+(2n-q+1)^2\}^{\frac{2r+1}{2}}\,Cos\left\{2r\,Arctg\left(\frac{2n-q+1}{p}\right)\right\}+\right.$$

$$\left.+\{p^2+(2n+q+1)^2\}^{\frac{2r+1}{2}}\,Cos\left\{2r\,Arctg\left(\frac{2n+q+1}{p}\right)\right\}\right]$$

14) $\int e^{-px} \, Cos\, qx.(1 - Cos^{2a} x) \frac{dx}{x^{2r+1}} = \frac{\pi \, Cosec\, 2r\pi}{2^{2a}\Gamma(2r+1)} \sum_{1}^{a} \binom{2a}{a-n} \Big[-2(p^2+q^2)^r \, Cos\left\{2r \, Arctg \frac{q}{p}\right\} +$

$+ \{p^2 + (2n-q)^2\}^r \, Cos\left\{2r \, Arctg\left(\frac{2n-q}{p}\right)\right\} + \{p^2 + (2n+q)^2\}^r$

$Cos\left\{2r \, Arctg\left(\frac{2n+q}{p}\right)\right\}\Big]$

15) $\int e^{-px} \, Cos\, qx.(1 - Cos^{2a+1} x) \frac{dx}{x^{2r+1}} = \frac{\pi \, Cosec\, 2r\pi}{2^{2a+1}\Gamma(2r+1)} \sum_{0}^{a} \binom{2a+1}{a-n} \Big[-2(p^2+q^2)^r$

$Sin\left(2r \, Arctg \frac{q}{p}\right) + \{p^2 + (2n-q+1)^2\}^r \, Sin\left\{(2r+1) \, Arctg\left(\frac{2n-q+1}{p}\right)\right\} +$

$+ \{p^2 + (2n+q+1)^2\}^r \, Sin\left\{(2r+1) \, Arctg\left(\frac{2n+q+1}{p}\right)\right\}\Big]$

Dans 8) à 11) on a $a \geqq b$, $0 \leqq r < \frac{1}{2}$; dans 12) à 15) on a $0 \leqq r < \frac{1}{2}$.

Sur 8) à 15) voyez Enneper, Schl. Z. 11, 251.

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T. 344. 25) $\int Arctg\left(\frac{1+p\,Sin^2 x}{1-p\,Sin^2 x}\sqrt{\frac{1-\sqrt{1-p^2}}{1+\sqrt{1-p^2}}}\right)\frac{dx}{\sqrt{1-p^2\,Sin^2 x}}=\frac{\pi}{4}\mathrm{F}'(p)$ Enneper, Schl. Z. 11, 74.

T. 351. 11) $\int_0^{\frac{\pi}{2}}\mathrm{E}(p\,Sin x)\frac{Sin x}{\sqrt{1-p^2\,Sin^2 x}}dx=\frac{\pi}{2\sqrt{1-p^2}}$ (VIII, 478).

12) $\int_0^{\frac{\pi}{2}}\Upsilon(p,x)\frac{dx}{\sqrt{1-p^2\,Sin^2 x}}=\frac{1}{6}\mathrm{E}'(p).\{\mathrm{F}'(p)\}^2-\frac{1}{6}\mathrm{F}'(p).l\frac{4(1-p^2)}{p}+\frac{1}{12}\pi\mathrm{F}'\{\sqrt{1-p^2}\}$ (VIII, 267).

T. 376. 16) $\int(e^{r\,Cos\,s\,x}-e^{-r\,Cos\,s\,x})\,Sin(r\,Sin\,s\,x).Sin^{2a}x\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+1}}(e^q-e^{-q})^{2a}(e^{re^{-qs}}+e^{-re^{-qs}}-2)\,[s>2a]$ (V, 95).

17) $\int(e^{r\,Cos\,s\,x}-e^{-r\,Cos\,s\,x})\,Cos(r\,Sin\,s\,x).Sin^{2a+1}x\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+2}}(e^q-e^{-q})^{2a+1}(e^{re^{-qs}}-e^{-re^{-qs}})\,[s>2a+1],=\frac{(-1)^{a-1}\pi}{2^{2a+2}}[(e^q-e^{-q})^{2a+1}(e^{re^{-qs}}-e^{-re^{-qs}})-2r]\,[s=2a+1]$ (V, 95).

18) $\int(e^{r\,Cos\,s\,x}-e^{-r\,Cos\,s\,x})\,Cos(r\,Sin\,s\,x).Cos^a x\frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+1}q}(e^q+e^{-q})^a(e^{re^{-qs}}-e^{-re^{-qs}})$ $[s\geqq a]$ (V, 95).

T. 395. 14) $\int e^{-\frac{q}{x}}Sin\,px\frac{dx}{\sqrt{x}}=e^{-\sqrt{2pq}}\{Cos\sqrt{2pq}+Sin\sqrt{2pq}\}\sqrt{\frac{\pi}{2p}}$ V. T. 268, N. 12.

15) $\int e^{-\frac{q}{x}}Cos\,px\frac{dx}{\sqrt{x}}=e^{-\sqrt{2pq}}\{Cos\sqrt{2pq}-Sin\sqrt{2pq}\}\sqrt{\frac{\pi}{2p}}$ V. T. 268, N. 13.

T. 397. 11) $\int_{-\infty}^{\infty}e^{-x^2}Sin\,2px.x\,dx=pe^{-p^2}\sqrt{\pi}$ (VIII, 516). 12) $\int_{-\infty}^{\infty}e^{-x^2}Cos\,2px.x\,dx=0$ (VIII, 516).

13) $\int_{-\infty}^{\infty}e^{-x^2}Sin\,2px\frac{dx}{x}=-2\sqrt{\pi}.\sum_0^{\infty}\frac{p^{2n+1}}{2n+1}\frac{1}{1^{n/1}}$ (VIII, 641).

14) $\int_{-\infty}^{\infty}e^{-c^2x^2}\{2q\,Sin(2c^2qx)+x\,Cos(2c^2qx)\}\,dx=0$ (VIII, 670).

15) $\int_{-\infty}^{\infty}e^{-c^2x^2}\{2q\,Cos(2c^2qx)-x\,Sin(2c^2qx)\}\,dx=\frac{q}{c}e^{-c^2q^2}\sqrt{\pi}$ (VIII, 670).

T. 377. 13) $\int (e^{r\,Cos\,s\,x} - e^{-r\,Cos\,s\,x})\,Sin(r\,Sin\,s\,x)\,.\,Sin\,p\,x\,.\,Sin^{2a+1}x\,\frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}\pi}{2^{2a+3}}(e^q - e^{-q})^{2a+1}$

$(e^{pq} - e^{-pq})(e^{re^{-qs}} + e^{-re^{-qs}} - 2)\,[p < s - 2a - 1]$ (V, 96).

14) $\int (e^{r\,Cos\,s\,x} - e^{-r\,Cos\,s\,x})\,Sin(r\,Sin\,s\,x)\,.\,Cos\,p\,x\,.\,Sin^{2a}x\,\frac{x\,dx}{q^2+x^2} = \frac{(-1)^a\pi}{2^{2a+2}}(e^q - e^{-q})^{2a}(e^{pq} + e^{-pq})$

$(e^{re^{-qs}} + e^{-re^{-qs}} - 2)\,[p < s - 2a]$ (V, 96).

15) $\int (e^{r\,Cos\,s\,x} - e^{-r\,Cos\,s\,x})\,Cos(r\,Sin\,s\,x)\,.\,Sin\,p\,x\,.\,Sin^{2a}x\,\frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}\pi}{2^{2a+2}}(e^q - e^{-q})^{2q}(e^{pq} - e^{-pq})$

$(e^{re^{-qs}} - e^{-re^{-qs}})\left[\begin{matrix}2p > 4a > s,\\ \text{ou } 4a > 2p < s\end{matrix}\right], = \frac{(-1)^{a-1}\pi}{2^{2a+2}}(e^q - e^{-q})^{2a}[(e^{pq} - e^{-pq})(e^{re^{-qs}} -$

$- e^{-re^{-qs}}) - 2r]\left[\begin{matrix}2p < s < 4a,\\ \text{ou } 2p > s > 4a\end{matrix}; \text{et } p = s - 2a\right]$ (V, 96).

16) $\int (e^{r\,Cos\,s\,x} - e^{-r\,Cos\,s\,x})\,Sin(r\,Sin\,s\,x)\,.\,Sin\,p\,x\,.\,Cos^a x\,\frac{dx}{q^2+x^2} = \frac{\pi}{2^{a+2}q}(e^q + e^{-q})^a(e^{pq} - e^{-pq})$

$(e^{re^{-qs}} + e^{-re^{-qs}} - 2)\,[p \leqq s - a]$ (V, 96).

17) $\int (e^{r\,Cos\,s\,x} - e^{-r\,Cos\,s\,x})\,Cos(r\,Sin\,s\,x)\,.\,Cos\,p\,x\,.\,Sin^{2a+1}x\,\frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}\pi}{2^{2a+3}}(e^q - e^{-q})^{2a+1}$

$(e^{pq} + e^{-pq})(e^{re^{-qs}} - e^{-re^{-qs}})\left[\begin{matrix}2p > 4a + 2 > s,\\ \text{ou } 4a + 2 > 2p < s\end{matrix}\right], = \frac{(-1)^{a-1}\pi}{2^{2a+3}}(e^q - e^{-q})^{2a+1}$

$[(e^{pq} + e^{-pq})(e^{re^{-qs}} - e^{-re^{-qs}}) - 2r]\left[\begin{matrix}2p < s < 4a + 2,\\ \text{ou } 2p > s > 4a + 2\end{matrix}; \text{et } p = s - 2a - 1\right]$ (V, 96).

18) $\int (e^{r\,Cos\,s\,x} - e^{-r\,Cos\,s\,x})\,Cos(r\,Sin\,s\,x)\,.\,Cos\,p\,x\,.\,Cos^a x\,\frac{dx}{q^2+x^2} = \frac{\pi}{2^{a+2}q}(e^q + e^{-q})^a(e^{pq} + e^{-pq})$

$(e^{re^{-qs}} - e^{-re^{-qs}})\left[\begin{matrix}2p \geqq 2a \leqq s,\\ \text{ou } 2a \geqq 2p \leqq s\end{matrix}\right]$ (V, 96).

T. 431. 20) $\int \frac{Cos\,q\,x\,.\,l\,Cos\,x + x\,Sin\,q\,x}{x^2 + (l\,Cos\,x)^2}\,\frac{Cos^r x}{1 - 2p\,Cos\,2x + p^2}\,dx = \frac{\pi}{2(1-p^2)\,l\,\frac{1+p}{2}}\left(\frac{1+p^q}{2}\right)^r + \frac{\pi}{2(1-p)^2}$

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